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INDEX TO VOLUME 67

JANUARY TO JUNE, 1935

This is an alphabetical index of articles and discussions arranged by leading words. It contains occasional cross references. Names of authors and men who discussed the papers are also included. Details of society proceedings, including

the titles of papers read, officers elected, etc., can be located in proceedings under Societies, Editorials, News of the State, Marriages, Deaths. The subjects of editorials also appear alphabetically and are marked (E).

A

Agranulocytosis, Frederic W. Buckley, Evanston	59
Abscess, Amebic	468
Allegretti, Joseph E. Paper.....	37
Amebiasis in General Medicine. Findley D. John and Thomas L. Dagg, Chicago	181
American Ass'n for Science.....	497
American Goiter Ass'n	498
A. M. A. House of Delegates. (E) ..	202
Anesthesia, Spinal. W. L. Waner, Evanston	45
Anti-Vivisectionist, Why? C. I. Reed, Chicago	134
Arnold, Lloyd. Discussion.....	265, 449
Arthritis, Medical Aspects of Chronic. Samuel J. Lang, Evanston.....	470
Aschheim-Zondek Test. Josiah J. Moore, Chicago	96
Avitaminosis, Pathology of. Harvey S. Thatcher, Little Rock, Ark.....	145

B

Beilin, David. Discussion.....	75
Berry, Leonidas, H. Paper.....	82
Birth Certificates Re Standard Time. (E)	398
Blastomycosis, Systemic. Herbert J. Wing, Maywood	551
Blood Findings Re Prognosis of Acidosis. R. M. Parrott, Oak Park, Ill.	457
Blood and spinal fluid reports. F. W. Sokolowski, Alton	524
Bohrod, Milton G. Paper.....	445
Bollaert, H. A. Discussion.....	40
Burcky, Frederic W. Paper.....	59
Bureaucracy Sapping Vitality. (E) ..	390
Burns of the Eye, Preparedness for. A. B. Middleton, Pontiac.....	357

C

Calculous Disease of the Urinary Tract. Leo A. Maslow, Chicago..	367
Calculi, Renal and Ureteral. L. D. Smith, Chicago	512
Cancer Mortality Increase. E. G. C. Williams, Danville	255

Cancer, X-ray and Radium.....	129
Cantrell, T. D. Discussion.....	250
Carbuncles, Treatment of. Everett B. Williams, Chicago	467
Carcinoma, Primary bronchogenic. D. J. Louis, Chicago	552
Cardinal Principles. (E).....	201
Central State Society of Industrial Medicine. (E)	444
Carr, James G. Paper.....	228
Carter, J. Bailey. Paper.....	158
Child-bearing and Diet. Daniel Thomas Quigley, Omaha, Nebr.	339
Christian Science Monitor Re Medicine. (E)	396
Christopher, F. Paper	515
Clement, Charles C. Discussion....	270
Cline, Gerald. Discussion.....	23
Clinic Habit. Charles H. Parkes, Chicago	354
Coe, George Charles. Paper.....	459
Colby Denounces Tyrannous Rule. (E)	390
Collapse Therapy in Pulmonary Tuberculosis	188
Colwell's Daily Log	8
Compound Injuries, Immediate Treatment of. Sumner L. Koch, Chicago	40
Cook, Edgar C. Discussion.....	81
Corbus, B. C. Paper	521
Coronary Occlusion, Painless. Fred Stenn, Chicago	381

CORRESPONDENCE:

Annals of Medical History May Suspend	333
Corporation Practice. M. J. Hubeny	438
Discrediting the Pamphlet	495
Dr. Cleaves Bennett.....	119
Doctors and Hospitals Re Auto Accidents	216
Emergency Relief Program.....	120
Gilmore, Dr. Wm. H. Obituary..	494
Illinois Sends Health Insurance Protest	116
Kiwanis Club Condemns.....	332
Legislative Activities, T. A. Hendricks	213

Legislator Opposes Corporation Practice. Reed F. Cutler.....	332
Martha Washington Hospital Condemns	333
Mayor La Guardia on the Spot....	119
Medical Economics for students. A. M. A. Committee.....	495
Michigan Labor Unions Bid.....	215
North Carolina Appreciated Activities. W. M. Johnson.....	213
Parables of Sophistes. C. G. Farnum	213
Rockford Invites You. T. H. Culhane	438
University of Illinois Alumni Oppose Corporation Practice. M. J. Hubeny	438
Vitamin E and Fertility. G. C. McGonigle	212

Cubbins, William R. Discussion....	52
Cushman, Beulah. Paper.....	259
Cushway, B. C. Discussion.....	133
Cutler, Max. Discussion.....	133
Cystic Disease of the Lungs. Emmet F. Pearson, Springfield.....	28

D

Dagg, Thomas L. Paper.....	181
Davis, N. S. Discussion.....	284

DEATHS:

Allen, John S. Keithsburg, Ill....	196
Ash, John Genar, Mount Sterling, Ill.	572
Beal, Albert Milton, Moline, Ill..	572
Baysinger, Millard Winfield. Chicago	484
Bennett, Cleaves. Champaign, Ill.	196
Bibb, Merwyn R. Chicago.....	100
Bowman, Lincoln Mock. Alton, Ill.	292
Brennan, Michael Earl. E. St. Louis	388
Broman, Mildred Jessie. Evanston, Ill.	196
Brown, Hilles Talley. Dixon, Ill..	388
Brown, Royal Oscar. Mt. Morris, Ill.	196
Buxton, William E. West Salem, Ill.	292
Cain, Green Alexander. Chicago..	292

- Campbell, William Scott. Chicago 100
 Clark, James A. Chicago..... 100
 Coppel, Carroll Reid, Keyesport, Ill. 572
 Croft, Albert Joseph. Chicago.... 100
 Dean, Arthur Clark. E. St. Louis, Ill. 196
 Diamond, Stacy Barcroft. Albany, Ill. 484
 Downs, James N. Atkinson, Ill... 388
 Eddleman, William Ralph. Anna, Ill. 100
 Elfrink, Benjamin Franklin. Chenoa, Ill. 484
 Falley, Richard L. Bible Grove, Ill. 484
 Feltenstein, Benjamin. Chicago.... 196
 Fey, Amos Charles. Galesburg, Ill. 484
 Finley, Clyde Alexander. Galesburg, Ill. 484
 Fisher, John. Chicago..... 484
 Folsom, Ephraim Melvin. Mt. Vernon, Ill. 100
 Friduss, Samuel L. Chicago..... 100
 Froom, Albert Ellsworth, Belvidere, Ill. 572
 Frost, Arthur McKendree. Mt. Vernon, Ill. 484
 Fuller, Agnes Virginia. Chicago.. 484
 Fulgham, John Henry, East St. Louis, Ill. 572
 Funkhouser, Robert M. Fairfield. 388
 Gabel, Emma Hortense. Chicago.. 196
 Ganser, Samuel Harris. Chicago.. 196
 Gettinger, Martin Luther. Palestine. 292
 Gialloreti, Vincent. Chicago..... 388
 Gibson, Elijah J., Louisville, Ill.. 572
 Gillette, Philip F. Kankakee, Ill.. 100
 Gilmore, Wilbur Hawley. Chicago.. 196
 Heilig, Oliver M. Millcreek, Ill... 196
 Hendricks, William. Chicago..... 484
 Hubbard, Charles F. Chicago..... 196
 Hueston, David P. Jacksonville... 100
 Hultgren, Jacob F. Chicago..... 484
 Hunt, Henry M. Chicago..... 196
 Hutton, John William, Newton, Ill. 388
 Johnson, Esther Concordia. Moline 388
 Johnson, Henry W. Port Byron, Ill. 196
 Kane, Archibald Cecil. Oak Park. 388
 Kelso, George Benson. Bloomington 292
 Kimball, George William. Coulterville 196
 Kisner, Charles H. Oblong, Ill.... 196
 Kuh, Sidney. Chicago..... 196
 Lackner, Ernest. Chicago..... 484
 Lakemeyer, Adolph W. Chicago.. 484
 Ledman, Edward Craig. Chicago.. 196
 Lester, Charles Austin. Peoria, Ill. 196
 Mallow, Otis Bush. Hines, Ill.... 484
 Marcusson, William Beringer. Oak Pk. 388
 Martin, Franklin II. Chicago..... 388
 Mershimer, James M. Chicago... 484
 Miller, Bernard. Chicago..... 388
 Miller, Noble William. Chicago.. 484
 McClintock, Roy White. Chicago... 196
 McDade, Robert E. Chicago..... 484
 McLaughlin, Alan Fleming. Richmond 484
 McRobert, William Alexander. Joliet 484
 Monahan, James John, Chicago... 572
 Murphy, Edward Simon. Dixon, Ill. 484
 Naughton, Michael Thomas. Chicago 196
 Newell, Robert C., Maywood, Ill.. 572
 Norden, Henry Aaron, Chicago.... 100
 Nordholz, William C. Oak Park, Ill. 100
 Obert, F. C. William. East Alton, Ill. 100
 O'Brien, Stephen James. Chicago.. 100
 Osborne, Gifford, Brownsville, Tex. 100
 Parker, Frank Busby. Ursa, Ill.... 292
 Perlewitz, Augustus E. Chicago.. 100
 Perlstein, Maurice R. Chicago... 292
 Pettepiece, Thomas Arthur, Freeport, Ill. 572
 Pitts, Jay Frederick. Chicago.... 484
 Plenz, Henry John. Chicago..... 292
 Porter, Grant. Plainfield, Ill.... 100
 Poynton, Robert Andrew. Chicago.. 292
 Roach, Harry A., Chicago..... 572
 Rucavado, Francisco J., Chicago... 572
 Rudolph, Martin E. Aurora, Ill.... 484
 Russell, Dennis P. Chicago..... 292
 Sauer, Henry Edward. Miami, Fla. 388
 Schlegel, Karl William, Milford, Ill. 572
 Schoolman, Edward Nathan. Chicago 100
 Schmidli, Charles. Bonfield, Ill.... 100
 Schroeder, Hugo Christian. Granite City, Ill. 484
 Sealy, Samuel T., Mounds, Ill... 572
 Service, Clarence Maitland, Springfield, Ill..... 100
 Shallenberger, Wilbert. Chicago... 484
 Sharkey, William Brady, Clinton, Ill. 572
 Short, William T. Stonington, Ill. 388
 Sins, John Milton. Macedonia, Ill. 484
 Smith, Frank Elbert. Decatur, Ill. 100
 Smith, Harvey S. East St. Louis, Ill. 484
 Sonnenfeld, Frederick E., Chicago. 572
 Stein, Henry, Altamont, Ill..... 572
 Storde, William S. Lewiston, Ill.. 100
 Taylor, Warren E., Moline, Ill.... 572
 Tebbetts, Frank M. Chicago..... 196
 Thornton, Alonzo D., Goreville, Ill. 572
 Thompson, Leroy. Chicago..... 100
 Thompson, William. Morrisonville, Ill. 292
 Tichenor, J. T. Waterford, Ky.... 196
 Timmer, William I. Cicero, Ill... 100
 Van Zant, Noble. Momence, Ill... 388
 Venn, Augustus E. Chicago..... 292
 Watson, John Henry, Chicago..... 572
 Whipple, John Allen. Peoria, Ill... 196
 Whitmer, Lawrence Wells. Chicago 292
 Wieland, Frank. Chicago..... 100
 Wilhelmj, Charles F. W. East St. Louis, Ill. 388
 Will, Otho Boyd. Peoria, Ill.... 388
 Wrede, Frederick. Chicago..... 292
 Yoder, Henry Lee. Morton, Ill... 292
 Younger, Charles Benjamin. Chicago 292
 Zuley, Lawrence Edward. Oak Park, Ill. 388
 Zwick, Albert Samuel. Chicago... 388
 Diabetes, Statistical Status of. G. Howard Gowen, Chicago..... 360
 Dick, Paul G. Paper..... 246
 Diet, Modern, and Child-bearing. Daniel Thomas Quigley, Omaha, Nebr. 339
 Diphtheria Immunization in Private Practice. King Grier Woodward, Rockford 244
 Diverticulum of the Bladder. Harry C. Rolnick and Patrick H. McNulty, Chicago 184
 Doctor, Why Blame? (E)..... 485
 Doctors Should Control. (E)..... 204
 Drucek, Charles J. Paper..... 275
 Drugs for Medical Relief Patient. (E) 443
 Durham, O. C. Paper..... 475
- ### E
- Earle, C. A. Discussion..... 246
- ### EDITORIALS:
- 1935 Annual Meeting, Review.... 487
 Annual Meeting, 1935...109, 202, 395
 Annual Meeting, 85th—Preliminary Program 303
 A. M. A. House of Delegates... 202
 Birth Certificates Re Standard Time 398
 Bureaucracy Sapping Vitality... 390
 Cardinal Principles 201
 Central State Society of Industrial Medicine 444
 Christian Science Monitor Re Medicine 396
 Colby Denounces Tyrannous Rule.. 390
 Colwell's Daily Log..... 8
 Doctor, Why Blame?..... 485
 Doctors Should Control..... 204
 Drugs for Medical Relief Patient 443
 85th Annual Meeting, Preliminary Program 303
 Ethical Prescriptions 442
 Every Ethical Physician Should Belong 397
 Federal Licensing Unnecessary.. 3
 Government Dictation Alarming... 2
 Happy New Year 1

- Health Insurance in Austria..... 110
 Hotel Faust 393
 Illinois State Medical Society Of-
 ficial Program 400
 Illinois State Medical Society Of-
 ficers 322
 Income Tax Report..... 126
 Infant Mortality, Reducing..... 487
 Judge McKinley vs. Corporation
 Practice 293
 Kelley, Meet Attorney Harry Eu-
 gene 300
 Life Extension Institute Faces Suit 395
 Maternal Mortality Report Erro-
 neous 5
 Meddling Paternalism..... 108
 Medical Profession Threatened..... 11
 Medicine by Politicians, Not Doc-
 tors 490
 Medicine, Regimenting 489
 Milbank Fund re Kingsbury..... 489
 Mississippi Valley Medical Society.. 440
 Murphy, Dr. Edward Simon..... 398
 No Limit in Sight..... 391
 Official Program 394
 Papers for Annual Meeting..... 7
 Picturesque Rockford 430
 Radio Talks Should Inform..... 205
 Rockford 394
 Russian Economics No Snap..... 7
 Senator Borah Decries Bureau-
 cratic Peril 389
 Sickness Insurance, A Political
 Plaything 101
 Socialized Medicine 204
 Suggestions on Preparing Copy... 206
 Spending Taxpayers' Money 492
 Supreme Court vs. Dentist Adv.. 396
 U. S. Medical Official Gets a Shiner 392
 Vitamin and Deficiency Diseases.. 103
 Vitamin E Bibliography..... 106
 Washington Bureaucracy Knows No
 Master 397
 When You Grasp Co-operative
 Spirit 397
 Why Should America?..... 197
 Will, Dr. Otho Boyd Obituary... 301
- Educational Committee:
 January 122
 February 219
 March 334
- 85th Annual Meeting, Preliminary
 Program. (E) 303
 Electro-Cardiography, Clinical Value
 of. J. Bailey Carter, Chicago..... 158
 Epileptics, Body Temperature In. I.
 Radeff, Dickson 270
 Epstein, C. M. Paper 517
 Ethical Prescriptions. (E) 442
- Every Ethical Physician Should
 Belong. (E) 397
 Exophthalmic Goiter, Preoperative
 Condition and Mortality. Willard
 O. Thompson, Samuel G. Taylor,
 and Karl A. Meyer, Chicago..... 53
- F
 Federal Licensing Unnecessary. (E) 3
 Fey, Amos. Discussion.....49, 53
 Ford, H. L. Discussion.....63, 174
 Freilich, E. B. Paper 537
- G
 Gall Bladder Disease, Modified Tech-
 nique. Adolph Hartung and T. J.
 Wachowski, Chicago 71
 Galloway, T. C. Discussion..... 63
 Galloway, C. E. Paper..... 526
 General Paralysis re Cerebral Lipoids
 and Trypsinamide. Emil T. Hover-
 son, Chicago 284
 Gianturco, Cesare. Paper..... 160
 Gillespie, James B. Paper..... 160
 Gilmore, Dr. Wm. H. Obituary..... 494
 Glaucoma, Surgical Draining in.
 Michael Goldenburg, Chicago..... 92
 Golden, Harold M. Paper..... 175
 Goldenburg, Michael. Paper..... 92
 Governale, S. L. Discussion..... 49
 Government Dictation Alarming. (E) 2
 Gowan, G. Howard. Paper..... 360
 Greeley, Paul W. Paper..... 451
 Greene, Earle I. and J. Major. Paper 51
 Grote, Henry W. Discussion.....133, 258
 Gulbrandsen, Lars. Paper..... 262
- H
 Hall, Andy. Discussion..... 283
 Hallux Valgus. Philip H. Kreuscher
 and H. Kelikian, Chicago..... 453
 Happy New Year. (E)..... 1
 Hartung, Adolph. Paper..... 71
 Headache, Post-Spinal Anesthetic.
 Samuel Peluse, Chicago..... 372
 Health Insurance in Austria. (E)... 110
 Heart Disease. Frank J. Jirka,
 Springfield 279
 Heineck, A. P. Paper..... 529
 Hemorrhage of ovarian origin. H. N.
 and T. N. Rafferty, Robinson..... 559
 Hernias, Postoperative and incisional.
 A. P. Heineck, Chicago 529
 Hess, Julius H. Paper..... 14
 Histamine Dosage for Stomach Tests.
 E. E. Seidmon and H. Necheles,
 Chicago 458
 Hotel Faust. (E)..... 393
- Hoverson, Emil T. Paper..... 284
 Hoyne, Archibald. Discussion..... 245
- I
 Illinois State Medical Society Officers
 (E) 322
 Illinois State Medical Society Official
 Program. (E) 400
 Income Tax Report. (E)..... 126
 Infant Mortality, Reducing. (E).... 487
 Intestinal Obstruction, Acute; Early
 Recognition. Earle I. Greene and
 J. Major Greene, Chicago..... 51
 Intestinal obstruction. F. Christopher,
 Evanston 515
 Intestinal Obstruction, Acute. Carl
 G. Roberts, Chicago..... 163
 Ireland, Harry J. Paper..... 445
 Irish, Henry E. Paper..... 143
- J
 Jirka, Frank J. Paper..... 279
 Joannides, Minas. Paper..... 188
 John, Findley D. Paper..... 181
 Judge McKinley vs. Corporation
 Practice. (E) 293
- K
 Kelikian, H. Paper..... 453
 Kelly, Meet Attorney Harry Eugene.
 (E) 300
 Kirkwood, Tom. Paper..... 377
 Koch, Sumner L. Paper..... 40
 Kreuscher, Philip H. Paper..... 453
 Discussion 250
 Kuh, Edwin J. Paper..... 25
 Kupke, E. H. W. Discussion..... 43
- L
 Labor, How to facilitate. S. D. Soter,
 Chicago 554
 Lang, Samuel J. Paper..... 470
 Laughlin, E. O. Paper..... 192
 Leukoplakia oralis. Casper M. Epstein,
 Chicago 517
 Lewis, D. J. Discussion..... 43
 Life Extension Institute Faces Suit.
 (E) 395
 Liver Abscess (Amehic) in Boy.
 M. H. Streicher, Chicago..... 468
 Louis, D. J. Paper 552
 Lundy, Clayton J. Paper..... 251
- M
 Malaria, Malignant Tertian. Harry J.
 Ireland and Milton G. Bobrod,
 Peoria 445
 Maley, William H. Discussion..... 44

MARRIAGES:

Altman, James Sloan. Pittsfield, Ill.	193
Bedard, Robert E. Rochester, Minn.	571
Burrows, Samuel J. Chicago	571
Cox, Cody A. Morton, Ill.	571
Crandle, Ellis R. Gorham, Ill.	193
Davia, James E. P. Chicago	193
Davis, James W. Dongola, Ill.	571
De Costa, Edwin J. Chicago	290
Gillespie, James B. Urbana, Ill.	98
Goldberg, Samuel Louis. Chicago	193
Gooder, William V. Marengo, Ill.	482
Hammond, John Francis. Chicago	385
Knewitz, Ralph Wylde. East St. Louis, Ill.	482
Michael, Oscar J. Danville, Ill.	98
Olson, Clarence. Princeton, Ill.	98
Reimers, Leslie H. Chicago	98
Seinfeld, Samuel G. Chicago	385
Snucker, Esther Elizabeth. Morton, Ill.	98
Stearns, Alexander L. Chicago	482
Thode, Paul G. Chicago	385
Thompson, Harry Goff. Mt. Vernon, Ill.	385
Watson, Sidney William. Alexis, Ill.	98
Whitacre, Frank E. Chicago	98
Martin, Arthur P. Paper	539
Marbel, Meyer M. Paper	166
Maslow, Leo A. Paper	367
Masters, Thomas D. Paper	351
Maternal Mortality Report Erroneous (E)	5
Mayer, Leo. Discussion	70
McDaniels, H. E. Discussion	266
McNulty, Patrick H. Paper	184
McReynolds, Ralph. Discussion	354
McShane, J. J. Discussion	82, 449
Medical Economics, James G. Carr, Evanston	228

MEDICAL ECONOMICS:

Committee Report, C. E. Wilkinson	115
Current Literature, H. M. Camp	113
Health Insurance, R. K. Packard	327
Medical Economics, E. S. Hamilton,	10, 112, 208, 326, 435, 493
Necessity for Co-operation, H. M. Camp	435
Realism and Health Insurance. J. R. Neal	209

Middleton, A. B. Paper	357
H. E. Discussion	70, 269
Miller, Leo Frederick. Paper	459
Milles, George. Paper	473
Mississippi Valley Medical Society. (E)	440
Mock, Harry E. Discussion	44, 53
Moore, Josiah J. Paper	96
Mundt, G. H. Discussion	359
Murphy, F. G. Paper	379
Dr. Edward Simon. (E)	398
We All Know, C. S. Skaggs	11
Medical Profession Threatened. (E)	11
Medical situation, Survey of. C. B. Reed, Chicago	506
Meddling Paternalism. (E)	108
Medicine—Last Fifty Years and Next Fifty. William Allen Pusey, Chicago	223
Medicine, Lighter Vein in. Edwin J. Kuh, Chicago	25
Medicine, Regimenting. (E)	489
Medicine by politicians, Not Doctors. (E)	490
Meliturias, Benign. Thomas D. Masters, Springfield	351
Membranous Infections	167
Mercurochrome. 400 injections. Arthur P. Martin, Chicago	539
Meyer, Karl A. Paper	53
Meyer, Samuel J. Paper	239
Milbank Fund re Kingsbury. (E)	489

N

Neches, H. Paper	458
Nephrosclerosis Re Urinary Obstruction. George Milles, Chicago	473
News Notes	99, 195, 291, 387
News Notes	571
1935 Annual Meeting. (E)	109, 202, 395
1935 Annual meeting, Review. (E)	487
Noise. Edward Podolsky, Brooklyn, N. Y.	478
No Limit in Sight. (E)	391
Non-Diphtheritic Membranous Infection in Children. Walter M. Whitaker and Walter Stevenson, Quincy	167
Nugent, Oscar B. Paper	345
Discussion	95

O

O'Byrne, Charles C. Discussion	43, 53
Ocular Surgery, Present Status of. Oscar B. Nugent, Chicago	345

Official Program. (E)	394
Old Time Doctor, E. O. Laughlin, Paris, Ill.	192
Olin, Harry A. Paper	76
Oncken, Mildred. Paper	236

P

Packard, R. K. Discussion	53
Papers for Annual Meeting. (E)	7
Picturesque Rockford. (E)	430
Parker, George. Discussion	57
Parkes, Charles H. Paper	354
Parrott, R. M. Paper	457
Pearson, Emmet F. Paper	28
Peluse, Samuel. Paper	372
Peptic Ulcer in Childhood. James B. Gillespie and Cesare Gianturco, Urbana	160
Perritt, Richard A. Paper	64
Personals	569
Personals	98, 193, 290, 386
Pertussis Vaccine Re Whooping Cough	166
Perry, Gentz. Paper	129
Phillips, Harry. Paper	461
Plastic Surgery Re Implants. Harold M. Golden	175
Podolsky, Edward. Paper	478
Pollak, M. Discussion	37, 191
Pollen Contamination of the Air. O. C. Durham, North Chicago	475
Premature Infants. Julius H. Hess, Chicago	14
Prostatic Resection, Transurethral. Gershom J. Thompson, Rochester, Minn.	365
Prostatic Surgery, Morbidity and Mortality. C. Otis Ritch, Chicago	90
Pulmonary Tuberculosis, Collapse Therapy. Minas Joannides, Chicago	188
Pusey, William Allen. Paper	223
Pyelocystitis. Clarence C. Saelhof, Chicago	450
Pyridium in Urethritis. Maurice B. Wolff, Chicago	155

Q

Quigley, Daniel Thomas. Paper	339
-------------------------------	-----

R

Radio Talks Should Inform. (E)	205
Ragins, O. B. Paper	537
Rector, Frank L. Discussion	258

- Reed, C. I. Paper..... 134
- Reed, C. B. Paper..... 506
- Religion, Fundamentals of medical.
Charles S. Skaggs, East St. Louis 500
- Renal Dwarfism. Leo Frederick Miller
and George Charles Coe, Chicago 459
- Resections of the Small Intestines.
Paul W. Greeley, Winnetka, and
Paul E. N. Greeley, Waterman, Ill. 451
- Retinal Detachment, Surgical Treat-
ment of. Samuel J. Meyer, Chi-
cago 239
- Retinitis Pigmentosa. Richard A. Per-
ritt, Chicago 64
- Rheumatic Heart Disease, Treatment
of. Clayton J. Lundy, Chicago.... 251
- Richardson, B. K. Discussion..... 449
- Ritch, C. Otis. Paper..... 90
- Roberts, Carl G. Paper..... 163
- Robinson, H. N. Paper..... 559
- Robinson, T. N. Paper..... 559
- Rockford. (E) 394
- Rolnock, Harry C. Paper..... 184
- Rony, Hugo R. Discussion..... 58
- Rudolph, Louis. Paper..... 561
- Rupture of Quadriceps Tendon. F. G.
Murphy, Chicago 379
- Russian Economics No Snap. (E).... 7
- S
- Sacrocoxalgia. Joseph E. Allegretti,
Chicago 37
- Saelhof, Clarence C. Paper..... 450
- Sappington, C. O. Discussion...251, 359
- Schilling Differential Blood Count.
Fanny Bell Warnock, Champaign 182
- Seed, Lindon. Discussion..... 58
- Seidmon, E. E. Paper..... 458
- Senator Borah Decries Bureaucratic
Peril. (E) 389
- Serology, Modern Advancement in.
Harry Phillips, Anna, Ill. 461
- Sickness Insurance, A Political Play-
thing. (E) 101
- Silicosis. Wendell Stewart, East St.
Louis, Ill. 382
- Skaggs, Charles S. Paper..... 500
- Skin test diagnosis of gonococcus in-
fection. Budd C. Corbus, Chicago. 521
- Smith, L. D. Paper 512
- SOCIETY PROCEEDINGS:
- Cook County: Chicago Medical
Society, Dec. 5, 12, and 19..... 97
- Jan. 9, 16, 23 and 30..... 193
- Feb. 6 and 20..... 289
- March 6, 20 and 27..... 385
- April 17 and 24..... 485
- Greene Co., Dec. 6..... 97
- March 8 485
- Iowa and Ill. Central, March 15... 485
- Kane County, Feb. 13..... 289
- Ogle County, April 23 569
- Randolph Co., Nov. 15..... 97
- Randolph County, April 24..... 569
- Union Co., April 11..... 482
- Union County, April 25..... 569
- Socialized Medicine. (E)..... 204
- Socialized medical service in U. S... 497
- Sokolowski, F. W. Paper..... 524
- Soter, S. D. Paper..... 554
- Spider Bites in Illinois, Poisonous.
Tom Kirkwood, Lawrenceville, Ill. 377
- Spinal Anesthesia. W. L. Waner,
Evanston 45
- Steigmann, Frederick. Paper..... 272
- Stenn, Fred. Paper..... 381
- Stevenson, Walter. Paper..... 167
- Discussion 269
- Stewart, Wendell. Paper..... 382
- Streicher, M. H. Paper..... 468
- Suggestions on Preparing Copy. (E) 206
- Suker, Dr. George Francis, Obituary.
Beulah Cushman, Chicago..... 259
- Systemic Infection from the Colon.
Charles J. Drucek, Chicago..... 275
- T
- Taxpayers' Money, Spending. (E)... 492
- Taylor, Samuel G. Paper..... 53
- Thatcher, Harvey S. Paper..... 145
- Thompson, Gershom J. Paper..... 365
- Thompson, Willard O. Paper..... 53
- Trichomoniasis, Treatment for Va-
ginal. Oscar W. Tulisalo, Rockford 467
- Trypsamide re General Paralysis... 284
- Tuberculous Meningitis re Racial Sus-
ceptibility. Loenidas H. Berry, Chi-
cago 82
- Tuberculosis, Basal pulmonary. O.
B. Ragins, and E. B. Freilich,
Chicago 537
- Tularcemia, Facial. Frederick Steig-
mann, Chicago 272
- Tulisalo, Oscar W. Paper..... 467
- Typhoid Carriers, Treatment of
Chronic. Lars Gulbrandsen, Chi-
cago 262
- U
- Ulcer of the Cornea, Treatment.
C. F. Yerger, Chicago..... 267
- Undulant Fever re Veterinarian.
W. H. Welch, Lexington, Ill. 78
- Urethritis, Pyridium in. Maurice B.
Wolff, Chicago 155
- Urinary Obstruction re Nephroscle-
rosis 473
- U. S. Medical Official Gets a Shiner.
(E) 392
- Uterus and Vagina, Congenital Ab-
sence of. Harry O. Veach, Kewa-
nee 459
- V
- Veach, Harry O. Paper..... 459
- Version re condition of uterus. Louis
Rudolph, Chicago 561
- Vertex presentation re episiotomy and
outlet forceps. C. E. Galloway,
Evanston 526
- Vitamin E Bibliography. (E)..... 106
- Vitamin F Deficiency. Mildred
Oncken, Chicago 236
- Vitamins and Deficiency Diseases.
(E) 103
- W
- Wachowski, T. J. Paper..... 71
- Waner, W. L. Paper..... 45
- Warnock, Fanny Bell. Paper..... 182
- Washington Bureaucracy Knows No
Master. (E) 397
- Welch, W. H. Paper..... 78
- Welker, Dorothy. Discussion..... 23
- Wester, E. A. Discussion..... 173
- When You Grasp Co-operative Spirit.
(E) 397
- Whitaker, Walter M. Paper..... 167
- White, Charles E. Discussion..... 43
- Will, Dr. Otho Boyd Obituary. (E) 301

Williams, Everett B. Paper.....	467	Woman's Auxiliary....	124, 221, 334, 439	X-ray in Industrial Hygiene. Paul G. Dick, Chicago	246
E. G. C. Paper.....	255	Woodruff, Harry. Discussion.....	94	X-ray and Radium Treatment of Cancer of the Breast. Gentz Perry, Evanston	129
Wing, Herbert J. Paper.....	551	Woodward, King Grier. Paper.....	244		
Whooping Cough re Pertussis Vaccine (Sauer). Meyer M. Marbel, Chicago	166				
Why Should America? (E).....	197				
Wolff, Maurice B. Paper.....	155				

X

X-rays and Health. Harry A. Olin, Chicago	76
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Z

Zelle, O. L. Discussion.....	49
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CONTENTS:

Editorials (See Extended Table of Contents)	
ORIGINAL ARTICLES	
Premature Infants. <i>Julius H. Hess, M. D., Chicago</i>	14
The Lighter Vein in Medicine. <i>Edwin J. Kuh, M. D., Chicago</i>	25
Cystic Disease of the Lungs. <i>Emmet F. Pearson, M. D., Springfield, Ill.</i>	28
Sacrocoxalgia. <i>Joseph E. Allegretti, M. D., Chicago</i>	37
Immediate Treatment of Compound Injuries. <i>Sumner L. Koch, M. D., Chicago</i>	40
Spinal Anesthesia. <i>W. L. Waner, M. D., Evanston, Ill.</i>	45
Acute Intestinal Obstruction: Its Early Recognition. <i>Earle I. Greene, M. D., and J. Major Greene, M. D., Chicago</i>	51
Preoperative Condition re Operative Mortality in Exophthalmic Goiter. <i>Willard O. Thompson, M. D., Samuel G. Taylor III, M. D., and Karl A. Meyer, M. D., Chicago</i>	53
Agranulocytosis. <i>Frederic W. Burcky, M. D., Evanston, Ill.</i>	59
Retinitis Pigmentosa. <i>Richard A. Perritt, M. D., Chicago</i>	64
Modified Technique for Suspected Gall Bladder Disease. <i>Adolph Hartung, M. D., and T. J. Wachowski, M. D., Chicago</i>	71
X-Rays and Health. <i>Harry A. Olin, M. D., Chicago</i>	76

(Continued on Page 8)

Eighty-Fifth Annual Meeting at Rockford, May 21, 22, 23, 1935

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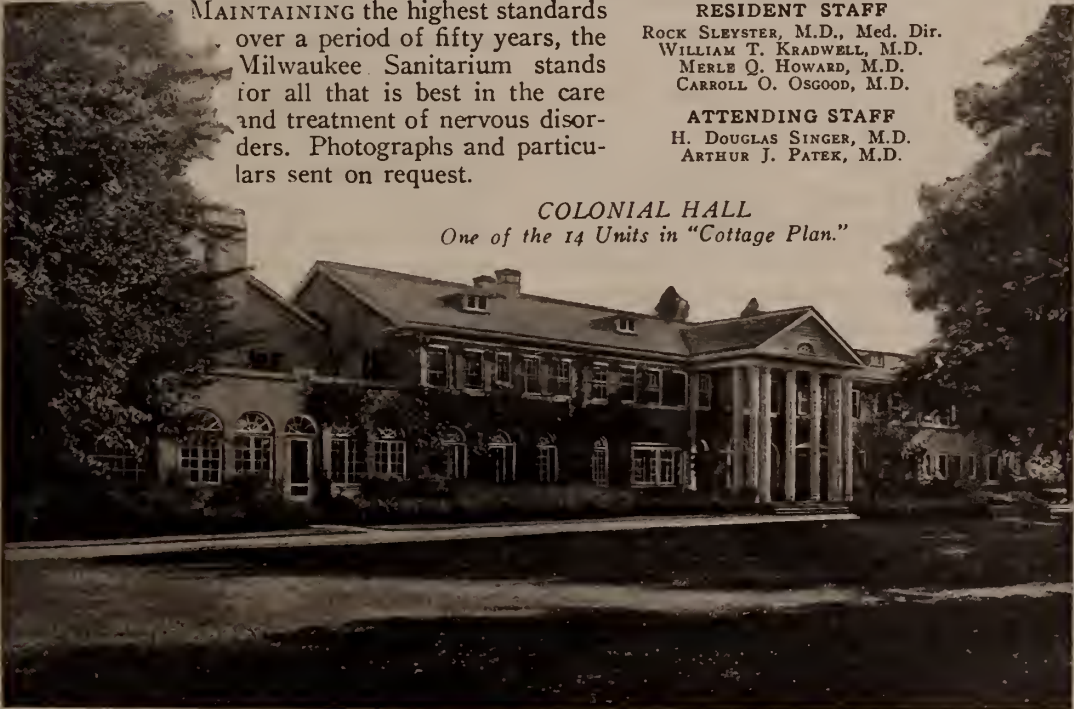
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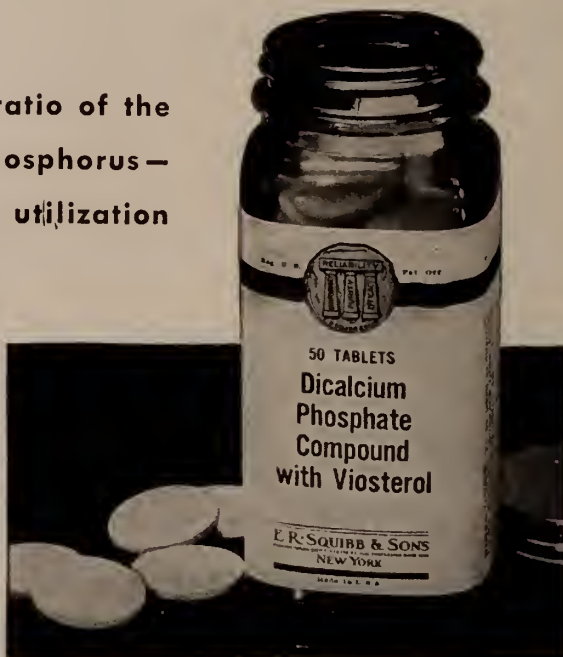
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Editorials

HAPPY NEW YEAR!

Even in the face of the desperate economic situation confronting far too large a proportion of physicians, the year 1935 will be a period of peace, plenty and prosperity doctor, if you will take to heart the ancient Japanese proverb:

"Make your plans for the year at its beginning!"

To insure wealth and well-being these plans must include a few fundamentals, such as:

1. Determination to fight the fight of medicine through your ethical societies of organized medicine, guided by the words of the apostle, "I have fought the good fight; I have kept the faith."

2. Insistence upon knowing what your alderman, your county commissioner, your local, state and national public health services; your state and national representatives and senators; in fact, *all* your elective or appointive legislative and executive representatives are doing *for* or *against* the vital aspects of medicine.

3. Investigation and analysis, dissection and elimination of all the communistic, socialistic, bureaucratic, lay-dictated, politically-financed schemes and plots by which *Politics* seeks to make of the sacred science of medicine a catspaw to pull chestnuts out of the fire for cheap, selfish and sadly misguided personal interests.

4. Decision to tell the truth far and near—to patients, friends, acquaintances, and the public everywhere . . . as to the inadequacies and incompetencies of public health insurance, *so-called*; maternity benefits, *so-called*; and all the other sop to voters that sap the life from the taxpayers, and the soul and the functioning from medicine; and to work ceaselessly for the inherent rights of medicine and of its apostles as against the vested interests that strive to pauperize the physician rather than to endeavor to banish the entire class of paupers in so far as that can be achieved in the face of the facts of the physical and mental inequalities of individ-

uals, either congenital or acquired. Poverty, not physicians, should be their target.

5. Covenant with oneself to study personally and to digest the situation of medical economics in all its bearings from the impositions and injustices of your personal practice to the interference with the practice and future of medicine at large by endowed foundations, corporations and hospitals practicing medicine; part pay clinics; excessive costs of medical education; excessive drain of personal charity; loss of individual and constitutional rights through lay-dictated control and interference; and the general desire of the general public to further minimize the right of any practicing, legitimate physician to earn a living commensurate with the income of the average middle-class-income patient whom the physician serves.

Since the World War, the way of the doctor has been hard. Even the path of the recognized gangster-criminal has been far easier in more than one respect. The World War fostered in the American heart a thirst for noble experiments based upon the word "verboden." The nineteenth amendment finally *verboden*ed itself off the map,—the most costly experiment in the history of the nation. Unfortunately while its departure slaked the national thirst for alcoholics, this exit did not appease, nor abate the national thirst and hunger for playing the boss and, for—further noble experiments! The softest looking back upon which to land appeared to the professional reformer and experimenter to be that of the medical profession. So now the pipers are playing a merry tune. You may not be dancing now, doctor, but you are on the way. "I told you so," is a hateful phrase.

But eventuations prophesied in these columns for almost a quarter of a century have had an unpleasant fashion of coming true. The dreaded compulsory health insurance is no longer a spectre; it is an embodied fact albeit as yet in swaddling clothes and still assailable. There can be no happiness, no non-healthy life, for medicine, nor for its apostles and disciples until all such communistic, socialistic, lay-and-politically inspired menaces are done away with. There is yet time—not much but time enough if every man in the profession will arouse to the peril.

Your "Happy New Year, Doctor," lies in the palm of your hand. With it lies the entire future of ethical medicine.

This is the Year of Crisis,—ay, it is the very

month, the very week, the very day. You must awaken and bend to the task.

"Make your plans for the year at its beginning."

GOVERNMENT DICTATION OF MEDICAL PRACTICE HAS REACHED AN ALARMING STATE

The tendency of the Federal Government is to extend its powers and activities far beyond the original purposes contemplated by the framers of the constitution.

The idea of Federal domination of medical practice as well as in other matters is being generally agitated by small but active factions in our country. The movement has reached an alarming strength. The unhappy omen is, that so many Americans are utterly unaware that this movement indicates that there is to be an essential change in our form of government.

The danger which every republic should fear is overcentralization, with the subsequent substitution of domination by one man for the rule of the people. Germany was the historic symbol of absolutism. We recently concluded a war, undertaken, we are told, that democracy might not perish from the earth. If this is true, to attempt to centralize in Washington the management of affairs that rightfully belong to the respective states is to create a system which cannot but destroy democracy among our people by betrayal of principles which are the fundamentals for the maintenance of government.

The centralization of power, whether in industry, commerce, education or the trades or professions or other factors entering into affairs of our everyday life amounts to this: That if we grant to an individual the power to make standard or be the sole authority to revise, abolish or fix conditions under which the people of the future have to live, work and be educated we set up an oligarchy which will create and foster bolshevism.

Another tendency is to foist bureaucratic institutions upon the people with its added swarms of employees. Such swarms are bad enough wherever found, but in the management of government practice of medicine will be fatal to the interests of the people.

Personal freedom is in danger, and personal freedom is an essential condition for progress in society. Government ownership of anything

tends to shackle freedom. The balls and chains on the hands and feet of a convict in prison are quite bearable in comparison with the shackles which government practice of medicine would forge upon members of society.

Bureaucratic administration and government practice of medicine will mean compulsory shifting of duties proper to the individual to a subsidized governmental agency and this in the end will destroy the initiative, self-reliance and independence without which democracy generates into autocracy.

Socialistic schemes, such as health insurance, state medicine, etc., for the control of medicine would be the opening for the thousands of similar laws that would follow. In a short time after the enactment of initial ones the government would be embarking wholesale in enterprises for which no constitutional bill of rights exists, and which forthwith establishes a socialistic state. And where would it all end? We know where it ended in ruined Russia. Are we a people so favored that we can sow the wind and fail to reap the whirlwind, that we can play with pitch and elude defilement; set in motion efficient causes and escape effects; establish a system of autocracy embracing every human activity and continue to be a nation of free people—a republic—an indestructive union of indestructible states?

Parliament, it has been said, is omnipotent, but even parliament cannot create adjacent hills without intervening valleys. Can the people of America set up industrial autocracy in Washington without resulting industrial slavery? Perhaps, but only in those idyllic days when the lion and the lamb lie down together and when without restraint the festive cow (?) shall vault over the silvery moon, and everywhere by act of congress, five is the sum of two plus two.

One hundred years ago the signers of the Declaration of Independence, the framers of our National Constitution, never dreamed of the possibility of the federalization of everything in the United States. Today we are facing the federalization of medicine, Banks, Schools, Railroads and Farming and these, if enacted, will be followed by and used as justification for the federalized church or federalized method of worship and of all details of daily life.

Medical men should be wise to the situation.

The current of present-day social talk is strong for federalized medicine. The movement must be headed off or directed rightly. It is part of social wisdom to erect breakwaters which will deflect erring currents into socially useful channels.

Before the movement gains further headway the medical profession as well as the public should be brought to a realization of the harmful influences resulting from the establishment of a bureaucratic form of government.

The medical profession should unitedly vigorously oppose any and every scheme brought forward which is intended to fix with practical irrevocability essential changes in the management of our every-day affairs for the good and sufficient reason that the welfare of generations of Americans yet unborn and the future efficiency of medical practice hang in the balance.

FEDERAL LICENSING OF PHYSICIANS UNNECESSARY AND UNCALLED FOR—ADDICTION IS A STRICTLY UNDERWORLD PROPOSITION AND HIGHLY COMMERCIALIZED

Excusing bureaucratic tendencies and further federal domination by accusing the medical profession of near-connivance with liberties with, if not of actual crimes against, the Harrison Narcotic Act, behold Powerful Politics in its current campaign for a federal licensing system to control the professional use by physicians of opium and coca leaves and derivatives of them, or in more common phraseology of "narcotic drugs."

The alibi for this action of the bureaucrats is the allegation that medicine did not keep its doorstep clean so it is up to politics to get out now with broom and dustpan. Nothing could be more absurd nor further from the truth. No class of the citizenry has a smaller pro rata of addicts than members of the medical profession. This has been proven time and time again. It has been demonstrated beyond cavil, that drug addicts are not made by doctors, but by the underworld, aided by negligent laws for the laity. Claims that administration of narcotic drugs during illness or convalescence have started individuals off on a life of addiction have been literally shot to pieces. The drug problem is a strictly underworld proposition and highly commercialized.

Nobody knows this better than Powerful Poli-

tics. But it is the fashion to mulct ethical medicine and make it the universal scapegoat of every possible and probable crime against the constitution. In this instance the handle of the bureaucrats is their assertion that the state medical examining and licensing boards do not exercise proper disciplinary measures against physicians who have been convicted of violating the provisions of the Harrison Narcotic Act, or of being addicts themselves or both.

Results of this contemplated federal interference need no comment. What will eventuate is obvious. That this new menace of lay control of the practice of medicine and the dispensation of drugs arises from professional handicaps is equally plain to those members of the profession who have seen, and who have protested valiantly against the laxity and incompetence of much of the legislation under which labor the state medical examining and licensing boards. There is no legislative backing when it is needed to ensure discipline. Reference is here made to those few occasions when to these bodies, evidence has been submitted showing that certain physicians, practicing under authority of licenses issued by these bodies, are themselves narcotic addicts, or have been convicted of violating the Harrison Narcotic Act, or of both offenses, and that even in the face of such misdemeanor, some such boards have found it legally impossible to either suspend or revoke the licenses of those offending physicians. Such a situation is criminal injustice to the ethical men of the profession and exposes to unwarranted attack by the laity, by the public press and by the professional reformers, every therapeutic tenet.

Men who accept a position of authoritative selective and disciplinary trust and recognize and respect and wish to fulfill its responsibilities should find the law a friend and not an obstacle. This Journal has long clamored for precision of personnel, both professional and lay, in regard to the composition of any group exercising advisory control or governing influence upon public policy of any nature and especially that public policy contacting questions of public health and of the practice of medicine and the allied arts, as well as for protective medical legislation. Experience is a sad pedagogue, and one of its saddest lessons is that what is begotten by politics and lives by politics will die by politics. Medicine

should not be forced into that class by the bureaucrats. "Federal control of medicine" would seem right now to be the politicians' heaven. "Pulling a wire" is the pet pastime of the charlatan, the cultist, the quack and the criminals. Such pestilences need eradication, not nurturing.

This purposed new control system would function with a federal officer or board determining who might or who might not register under the Harrison Narcotic Act or supplementary legislation, and without such registration, no one, even a physician lawfully engaged in the practice of medicine, could administer, dispense or prescribe any drug covered by the federal licensing system.

While at the outset this prohibition might be limited to "narcotic drugs" it would place in peril the entire scheme of general therapy leaving it all practically at the nod and beck of "federal control" or at the whim of a politically controlled bureaucracy, perhaps dictated to at no very far distant time by the herbalists, naproaths, Christian Scientists or any one or dozen of the unending lists of those who make a mockery of medicine and a fat harvest field of the credulous sick.

Banished completely would be even the present far from ideal arrangement whereby a physician authorized by a state to practice medicine can register under the Harrison Narcotic act as a matter of right, and can professionally use narcotic drugs; nor can the federal government suspend or revoke his registration, so long as his *state license* to practice medicine continues in force.

If this federal licensing system is established the damage to the medical profession and to the general public will be incalculable. For as soon as the federal government begins to withhold or to cancel registration under the Harrison Narcotic Act, or any similar statute *since such denial or revocation will not coincidentally estop the man or woman from practicing medicine under his state license*, there will be created automatically a class of physicians who are actively and lawfully engaged in the practice of medicine under state authority but who are forbidden by national authority to use in connection with that practice of medicine such essential narcotic drugs as opium and coca leaves, and compounds and derivatives of them! *Quod absurdum est.*

THE NEW YORK ACADEMY OF MEDICINE MATERNAL MORTALITY REPORT HAS LEFT SERIOUS ERRONEOUS IMPRESSION

The lay press of the United States should be asked to give as much publicity to the comment by Dr. E. C. Podvin upon the Report on Maternal Mortality as was given to the report itself.

Before the New York Obstetrical society, the New York Academy of Medicine and the Medical Society of the County of New York Dr. Podvin read a brief but able paper. He is an executive officer of the Bronx County Medical Society. Plenty of us would like to pat him on the back. He at least has the right idea. We quote from *The New York Physician and Private Hospital*. Said Dr. Podvin:

"I have been asked to discuss this report from the viewpoint of the general practitioner, the reason being no doubt that I spend the greater part of my time sitting at the crossroads of medical activities—in an office of organized medicine. I attend an average of fifty meetings a month—society meeting, committee meetings and the like—and I can assure you that no happening within my memory has been the occasion of so much comment, printable and otherwise, as has this report. I will endeavor to bring to you as briefly as possible some of the impressions that I have received from these discussions.

"Now to enumerate a few of the points emphasized by the critics of the report.

"After contrasting the decline of mortality in acute infectious diseases with the fatalities occurring as a result of pregnancy—an absurd comparison—the report states: 'Greater progress has been made in the understanding and treatment of the more serious abnormalities of pregnancy and delivery. These advances have failed to produce a decrease in the deaths. The conviction has been growing that this group of diseases, if subjected to intensive study and investigation, would yield the information which could be utilized to produce an improvement comparable to that of other fields of Preventive Medicine.'

"Certainly nothing adduced in the study we are considering tonight fulfills this prophecy.

"Under the caption 'Preventability of Death' is stated the 'reduction of mortality and morbidity in all branches of medical practice has been shown to lie increasingly in the field of preven-

tion, and obstetrical practice is no exception to this general rule.'

"Using the modern classical retort, the men say, 'Oh yeah?' how about placenta previa, accidental hemorrhage and toxemia of pregnancy. Are these preventable? If so, how?

"Further in this illuminating chapter we read 'in judging whether or not the death was inevitable, the criteria has always been *that of the best possible skill*, both in diagnosis and treatment, which the community could make available.' The positive date of the arrival of this millennium whereby every delivery shall be provided with 'the best possible skill available' is still unprovided for by this report. Even the courts in judging the culpability of a doctor in a malpractice action do not require that he exercise the highest possible skill. If it is shown that he displayed ordinary ability in keeping with the average in his locality he cannot be held accountable. Yet a Committee of doctors would hold him responsible unless he exercises 'the best possible skill available.' And it is on the basis of such ridiculous hypothesis as this that the conclusions are reached.

PRENATAL CARE

"Under this heading much has been written. The blame for many fatalities absolutely fixed by this observance or otherwise. Yet the fact remains that during the period of this study the development of prenatal care has come into more general use than ever before. When I began the practice of medicine thirty-five years ago prenatal care was practically unknown. No one today would wish to deny its proper sphere in obstetrics. Yet it does not seem startling that though the great bulk of the deliveries at present are done by the more recent graduate familiar with the routine of prenatal care—whatever we know about it—there has been little if any appreciable reduction in mortality. In fact on page 143 of the report it states 'it is very difficult to offer any conclusions in regard to the influence of prenatal care upon the outcome of the case.'

HEMORRHAGE

"The report reads 'if a woman died from hemorrhage accidental or placenta previa—the death would be accounted as preventable *if it appeared* that there had been an improper choice of the method of delivery.' How do these super-

men determine merely from a study of the records that the choice between a podalic version and a Cesarean must have been an improper one and ergo accountable for the mortality?

SEPTICEMIA

"Just one sentence from this chapter 'When there has been any artificial interference *what-ever* preceding a death from septicemia that death has usually been classified as preventable and the responsibility ascribed to the doctor.' In other words in the absence of positive proof to the contrary blame it on the doctor. No extenuating circumstances, no question of reasonable doubt. To escape he must prove an alibi. Many cases of fatal toxemia have followed spontaneous deliveries. Who is to blame for these?

TOXEMIA

"Again quote 'If a patient . . . showed evidence of toxemia and the doctor failed to prescribe the proper treatment the death would be counted preventable. Just what and how efficient is the so-called proper treatment in toxemia? The only routine described in this report is rest and diet. This is emphasized by frequent repetitions, yet while not decrying its advisability, how many cases of fatal toxemias have we not seen following its careful observance, too frequently in the doctor's own family. How, then, the absolute dicta that its non-observance is probably the cause of preventable deaths?

MIDWIVES

"In this chapter the absurdities of this report rise to a climax. How the Committee can justify the recommendation of elevating the standards of obstetrical practice by better training in the Medical College on the one hand, and later advocate the extension of the practice of midwifery is beyond the ken of ordinary human intelligence. The experience of the doctors that I have listened to has been that the practice of obstetrics is only a window-dressing used to camouflage the real activities of a great majority of these women.

"Now the deductions that I have made from the many opinions I have listened to are that the profession in general does not regard this as a medical report at all.

"A scientific medical report is always brought forth with tenacity, after a careful laboratory analysis and practical application submitted

usually to group of specialists who are the accredited leaders of this practical field. When it is approved, it is further tested by bedside applications, and eventually, if found effective, is presented to the Medical Societies, and *then* may reach the public press. Instance the vaccine for immunization against infantile paralysis by Dr. Sydney D. Kramer. No newspaper headlines. This is more like a foundation report which is of an entirely different species. Its one peculiar characteristic is that it is inevitably a demonstration of the correction of judgments passed before the investigation which produced them was even begun. Secondly, its findings are given first to the lay press and presented in their most sensational aspects as if they had a specific purpose against the medical profession. And finally, it is always supported by the signature of some estimable gentlemen, who are either eased into an unenviable position because the restrictions placed upon their judgment make it difficult to withhold their signatures.

"It is generally held that this report will be very detrimental to the morale of the entire profession. That it has thrown no light whatever upon the means of overcoming the greatest causes of maternal mortality—namely, hemorrhage, sepsis and toxemia, but has concerned itself in a major degree in fixing the blame in what we feel is a most unfair manner on the doctor.

"So deep is the resentment that has been engendered by reading the excerpts from the report given to the lay press that it has caused the great mass of the profession at large to lose confidence in and even question the sincerity of the motives of its purpose.

"Personally, I am aware that organized medicine which has always been sustained by its unselfish and unpaid workers, and which has at all times advanced the cause of public health betterment, as well as the best interests of the profession, has sustained a staggering blow from which only the sincerity of its motives and the idealism of its leaders will enable it to recover. But it will recover and continue its endeavors long after this report is forgotten.

"The physicians whom I have heard discuss this report have examined it in a fairminded manner and with the view to finding, if possible, something of benefit to the profession. Their conclusion is that it has no value except as an

attempt to injure the standing of the profession before the public as another step in the advancement of State medicine.

"What further means may be used to attain the end we have no way of knowing. But certainly those of us who have devoted a great part of our lives in an endeavor to build up and sustain the individual practice of medicine, will not allow this or any other occasion to pass without raising our voices in sincere protest."

RUSSIAN ECONOMICS AS VIEWED BY A CHICAGOAN—RUSSIA IS NO SNAP FOR WOMEN

Proponents of the socialism of medicine and the lay control of this learned profession, would do well to find out what actually is taking place in Russia, dispensary of state control of everything from churches to crops. Results have to be reckoned with always, and one of the oldest of adages is that which says "Fine words butter no parsnips."

In the United States, without knowing it, the average citizen comes nearer to being a king, than has ever happened anywhere on earth and even in these days of depression our poorest citizens are cared for far better than the same class in any other nation. Unfortunately there is no international yard-stick for the measurement of living standards any more than there is for maternal mortality statistics. If there were there might be a keener understanding of many economic problems.

Russia has ballyhooed at a high rate and fast tempo as to the benefits deriving from state control of medicine. A few issues ago, in the ILLINOIS MEDICAL JOURNAL were published excerpts from the diary of a reputable Russian physician and surgeon in which his record of actualities and bare facts as contrasted with soviet propaganda as to the soviet status of medicine differed as widely as the circus that came to our town in boyhood and the posters that went out ahead of the circus!

In the welter and wash of subsidized reports as to what is going on in that vast nation, it is refreshing as well as essential to grasp at any statement that is truthful and free from the deadly bloat of paid-for propaganda. Samuel E. Erickson, of Chicago, former president of the Cook County (Illinois) Real Estate board and clerk of the Superior Court, returned recently to

Chicago from a two months' trip through Russia, Iceland and Finland.

Mr. Erickson declares that Russia is not only the most gruesome country on earth, but that all idealism is lost not only among men and women, but even the children. Adding that everybody in Russia has a "bread card" but that there is no bread to be secured by it, Mr. Erickson said, "Russia is assuredly no snap for women. The Russian moujik is in the army and his daughter or wife must do man's work. The Russian atmosphere smells of war; the men are training; I have seen women, uniformed in white, drilling in Moscow's Red Square. I have seen women with picks and shovels digging sewers, operating street cars, serving as railroad switch brake operators, shoveling coal, piling lumber.

"Morality is something about which soviet Russia knows virtually nothing. There is no religious ceremony for marriage. Go to a marriage bureau before breakfast for instance; tell them you wish to be married, and you are. Before lunch tell them you want a divorce and you get it. Children? If you have them, just give them to the state to which you must pay one-third, if you are working."

The Chicagoan said he saw commissars sacrilegiously poke fun at the most sacred icons, or pictures depicting Christianity.

If the common people could, Mr. Erickson insisted, they would destroy bolshevism today. Another revolution, he predicted, is imminent.

DOCTORS DESIRING TO PRESENT PAPERS AT THE 1935 ANNUAL MEETING OF THE ILLINOIS STATE MEDICAL SOCIETY

Members desiring to present papers at the 1935 Annual Meeting to be held in Rockford, on May 21, 22, 23, 1935, should write to the chairman or secretary of the section before which they desire to appear.

It is desired that all papers to be presented should be practical and not merely presented as a "hobby" of an individual physician. It is desired that a request to appear on the program before any section should be sent as early as possible to the chairman or secretary, and with the request, a synopsis of the material which the member would like to present.

We are herewith giving the name and address of the chairman and secretary of each section.

If a down state member desires to present a paper it would be preferable for him to write to the down state section officer, while the Chicago Medical Society members should write to the C. M. S. officer.

It is the desire of each section to arrange the programs well in advance of the meeting, as they will begin to arrange their respective programs soon after the first of January.

SECTION OFFICERS FOR 1935

SECTION ON MEDICINE

Don C. Sutton, Chairman, 30 N. Michigan Blvd., Chicago.

George Parker, Secretary, Peoria.

SECTION ON SURGERY

J. W. Hermetet, Chairman, Macomb.

John A. Wolfer, Secretary, 8 S. Michigan Blvd., Chicago.

SECTION ON EYE, EAR, NOSE AND THROAT

O. B. Nugent, Chairman, 231 W. Washington St., Chicago.

W. W. Gailey, Secretary, Bloomington.

SECTION ON PUBLIC HEALTH AND HYGIENE

Lloyd Arnold, Chairman, 1853 W. Polk St., Chicago.

W. M. Talbert, Secretary, Decatur.

SECTION ON RADIOLOGY

F. Flinn, Chairman, Decatur.

George M. Landau, Secretary, 660 Groveland Park, Chicago.

The Annual Secretaries Conference will be held on Tuesday, May 21, at 10:00 A. M. Any secretary having suggestions as to the character of program or the presenting of papers should get in touch with Dr. Donald W. Killinger, Secretary of the Secretaries' Conference, Joliet, Illinois, as it is the desire of the officers of the Conference to have an outstanding program which will appeal to all officials of county medical societies as well as to the membership in general.

DR. COLWELL'S DAILY LOG FOR PHYSICIANS

A daily service of genuine helpfulness to every physician and a sine qua non for a bird's eye view of a medical man's daily financial condition is presented in the "Daily Log" for physicians

issued by Dr. John B. Colwell of Champaign, Ill., and published by the Colwell Publishing Company, Champaign, Illinois. Price \$6.00.

This is the eighth edition of the "Daily Log." For a number of years this volume has been a first aid to every busy doctor and his pocket book. Since first put out it has been subjected to yearly revisions and annotations though the general principle remains the same. "The Log" is just what its name says it is. Here is a daily financial record that is a brief, accurate, easily kept practical accounting system with daily, monthly and yearly totals, and monthly summaries and balances of income and expenses. It is *not* a ledger. To make a complete accounting system, a ledger must be run with it as the ledger is necessary for gathering together separate items of an individual account. However, this "Daily Log" is about the best thing that a busy man can have. It is easily kept by any intelligent office assistant and shows the physician the progress of his business day by day, and at the close of the year sets forth the basic figures needed for the income tax return.

Though not a clinical record there is a "Service Rendered" column for brief annotations of clinical facts.

Revisions and additions in the '35 issue include:

1. Complete revision of the Obstetrical Record, so that it will furnish the data needed for the birth certificate. All the Obstetrical record blanks are gathered in the back of the book instead of placing one sheet at the end of each month as heretofore.

2. An entirely new form of brief notations of Surgical Operations is found among the special pages at the end of each month.

3. The dating of the Daily Page is revised so that the day of the month always appears at the upper outer corner of the page.

4. A more expensive cover, better appearing and more durable, has been provided.

Containing over four hundred pages, the ledger provides a separate page for the transactions of each day of the year with extra spaces for monthly and annual summaries, expense tables, special records, and incidental memoranda. The volume is not to be confused with the small or pocket-size dairies often furnished for physicians' records, since each page offers sufficient room for the recording of thirty-two patients per

day, tabulating the service rendered and the financial account accompanying the transaction. Where fewer patients are seen, the additional space may be readily utilized in recording prescriptions given or essentials of the physical examination. The system is built on a loose leaf plan and durably bound in fabricoid. This is the best and most compact financial record which has come to our attention.

TWO'S COMPANY, THREE'S A CROWD

"Sickness is a matter intimately personal. It is a time when sincerity of dealing cannot be compromised nor human feelings flouted.

"How disturbing, then, is the thought of having a third person or alien party exercise an influence on the relationship between the patient and his physician, the two persons who, above all others, are most vitally concerned when sickness enters the home.

"Yet this third party influence, with all its unpleasant and disturbing sequels, will inevitably be thrust upon patient and physician should some of the current new schemes of medical practice ever gain acceptance.

"Carried to their full development, such plans would mean that your family doctor would be the hireling of a commercial organization or of a department of the state, the former built up necessarily by business promotional efforts, high pressure salesmanship and price competition, the latter made compulsory by legal enactment.

"Experience has already shown that contract or insurance schemes would not be successful if they observed carefully the principles of conduct and fair competition which operate as definitely for the public good as for professional honor. In these principles financial gain is subordinated to the prime object of service to the patient and to humanity.

"Furthermore, the history of some of these ventures reveals highly deplorable tendencies. 'Scare head' advertising has appeared as a means of frightening people into subscribing for memberships. Medical service has been promised at ridiculously low and actually impossible rates. The services of hundreds of physicians have been promised to subscribing members, whereas actually but a small fraction of that number were 'signed up' and available. Patients have found that they must be served by the physician assigned to them, not by the man of their choice. And the poorer classes have paid the same price for medical service as the very wealthy.

"No, the fine, sympathetic, humanitarian service at present rendered by the family physician can never be satisfactorily replaced by a commercial organization that retails medical service for a profit, nor by the state with a mechanized or regimented medical profession. The interjection of such agencies between patient and physician is unnecessary and cannot fail to be disturbing to all parties concerned."—From Mead

Johnson & Company's Announcement in Hygeia, September 1934.—Adv.

TREATMENT OF GONORRHEA IN THE FEMALE

Emily Dunning Barringer, New York (*Journal A. M. A.*, Dec. 15, 1934), states that vaccine therapy is not a specific for the cure of gonorrhea. It is, however, probably a valuable form of treatment in the acute and subacute stages of the disease. This is probably true also in chronic cases in which the main offending organism is the gonococcus. It is probably not of value in cases due to "mixed" infection. In the acute and subacute stages, vaccine therapy will probably shorten the period of hospitalization. However, the great drawback of severe reaction from this treatment, especially with large doses, is to be considered. It is questionable whether large doses are justifiable, because of these reactions. Probably vaccine therapy in smaller doses combined with indicated routine treatment would be a more desirable type of treatment. Vaccine therapy is of sufficient importance to warrant further careful study into dosage, complement fixation reaction and tests for proof of cure.

THE FREI TEST FOR LYMPHOGRANULOMA INGUINALE: RECOVERY OF ANTIGEN FROM PUSTULAR REACTION

Maurice J. Strauss and Marion E. Howard, New Haven, Conn., (*Jour. A. M. A.*, Dec. 15, 1934), report experiments that they believe may shed some light on the nature of the Frei reaction. The cases used in these experiments included: a clinically typical case, strongly positive to a known Frei antigen, which furnished some of the experimental antigen used, an atypical case in which a large abscess and little periadenitis were present, a typical case presenting, in addition, a large abscess, a rectal case in which there were fistulas exuding pus, a rectal case in which there were no fistulas but a typical stricture, a clinically typical case and a severe case in which there was one particularly large abscess from which further experimental antigen was obtained. The experiments suggest that the contents of the pustule resulting from the Frei test contained an antigen identical with that of Frei. From which three possibilities suggest themselves: (1) the active principle of the antigen is present in the blood and is found in the pus as a result of this, (2) new antigen was formed just as it is in active lesions or (3) some of the antigen injected into the skin was still present and was recovered in the pus. The authors state that their results suggest that: 1. If a Frei reaction is strong enough to cause vesicle formation, the contents of this vesicle are capable of producing a reaction similar to the Frei reaction in patients with lymphogranuloma inguinale. 2. The substance causing this reaction is probably a remainder of the Frei antigen originally injected and not combined with antibodies. 3. These antibodies are not circulating antibodies but fixed antibodies.

MEDICAL ECONOMICS

The Chairman of this Committee has been visiting a few of the County Medical Societies and has been astonished at the lack of definite information as to the threatened changes in the practice of medicine (on the part of the practicing physicians). This is an indictment of both the A. M. A. and the Illinois State Medical Society, inasmuch as the chief function of both is to keep the members informed and to oppose those things which in the opinion of the officers are inimical to the medical profession. Also there has been an equally unexplainable reaction on the part of some of the members that there is no real danger and that those of us, who for the last few years have been continually talking about the dangers of State Medicine are alarmists. Surely, these men have not followed the information put out by the A. M. A. and the State Society, or are unwilling to believe what they have read. Even the monthly magazine, *Medical Economics*, which is received free every month by every physician in the United States and has been classified, by the editor of the A. M. A. as waste basket material, is putting out definite information as to what is being attempted. We need not agree with their ideas and conclusions as to the ultimate result of all these attempts, but at least we can read their statements of facts and when we see that they are identical with those published by the A. M. A., surely the doubting Thomas will be aroused to the dangers of threatened legislation.

The increased number of letters that the Chairman of this Committee is receiving from both within and without the state, show that there are many men giving deep thought to this subject and are willing to help in any way possible to combat this menace. A letter from one of the most influential and seasoned members of the State Society received this morning contains the following: "The worst feature of the whole situation to me is the indifference of our individual members. I am not hunting for a job, but I will help in any way I can." That man knows the situation and has the spirit, which will help organize medicine to meet this new danger. Another letter recently received says, "The individual members of the Illinois State Medical Society have got to be jolted into a realization of this situation. Somebody must go into each county and put the fear of God and bankruptcy

into the heart of our members." Strong words, but coming from the heart of a man who knows the problems of the medical profession and is willing in spite of financial independence and advancing years to carry on the fight for the continuation of the practice of medicine as a private affair, they are very encouraging.

This Committee hopes to have a definite plan to present at the next meeting of the Council in January for educating the people of the state of Illinois, including the legislators, through the activities of the medical profession, on the subject of proposed changes in the conduct of the practice of medicine. If this plan is satisfactory and approved there will be work for all of us, bounded only by our individual ability and unselfishness. Ten thousand physicians, fully informed on this subject, so that they can answer all questions propounded, with their friends can wield an influence on the people of this state, especially the legislators, second to that of no other group. But first we must make each and every physician so acquainted on the subject and so enthusiastic about the goal that they are willing to give the necessary time to prepare to be apostles.

Any physician who desires information on this subject should write at once to the A. M. A. and receive copies of their latest brochures on the subject. There are already nine of these with more in the process of preparation. A letter to the Bureau of Medical Economics, at 535 North Dearborn Street, Chicago, will bring them. We recommend particularly "Sickness Insurance Catechism" and "Sickness Insurance and Sickness Costs."

It is the duty of every physician to keep abreast of the developments in this line and this can be best done by watching the Journal of the A. M. A. and the State Journal. Also these pamphlets above referred to contain a great amount of valuable information. We feel sure that the number of pamphlets will be increased as rapidly as the data can be obtained and prepared.

Again the Committee wishes to remind the members of the State Society that they are anxious to help them in any way possible on this subject. Letters addressed to the Chairman of the Committee will be referred to the proper individual for answering, provided an addressed stamped envelope accompanies the letter. So feel

free to write them when you have an economic problem that may be possible of solution by some member of the Society who has had prior experience in the same field.

E. S. HAMILTON, Chairman,
Committee on Medical Economics,
Illinois State Medical Society.

WE ALL KNOW! WE ALL KNOW WHAT?

We all know the cause of our economic troubles in and out of our profession, yet we ask the question. If we know the cause of our economic tangle, why don't we untangle it?

A thief knows that the law is after him long before the law knows who the thief is. Why doesn't the thief stop stealing before the law knows who he is and apprehends him? The fundamental reason is that he does not want to stop stealing.

We, as a profession, have remained in our economic troubles because we have not wanted to do the things that would correct our troubles. On the whole, we want to correct our wrongs, but as individuals we still cling to the things that pulled us into our economic muddle. I am willing and desirous that you do the right thing and I am willing to blame and censor you for not doing as you should, but I want to be left alone and be permitted to follow my selfish ways with the hope that I will not only profit from my selfish gain but that I will also be benefited by the good deeds of others. You and I are the same in these hidden or so considered hidden motives, forgetful of the fact that you and I make up the great profession of medicine which has economic troubles you and I want righted.

When you and I come to that place in our desires where we want to do what we want the other fellow to do, then we will have taken the necessary and essential step which takes us to that place in our economic domain where we want to be, provided we keep stepping in that same direction. In other words, you and I must do what we want the other fellow to do and do it first.

We need more helpers and fewer competitors. Our whole economic set-up is based on beating the other fellow to it, instead of helping him to it and as a result we've gone into a tangle and

each one is afraid to let go for fear the other fellow will be on his feet and gone before we get up.

This sort of plan is considered good, sound business and I have no argument with business economics, but the practice of medicine is not a business; and if it ever becomes such, it will be a poor business for a doctor to be engaged in. The sooner medicine stops talking business and turns its attention to the practice of its art and science, the less it will have need of an economic committee.

We need to adopt a plan to help one another instead of planning how we can underbid and get the business from our fellow practitioner. We need to study for ourselves, how cheap we can treat and care for our patients instead of permitting a lay commission seasoned with a few doctors who never heard the meaning of real service, to study the cost of medical service.

It is time you and I knew how much our patients can afford to pay for our services and adjust this with our patients instead of letting a few doctors who have become wealthy off the good graces of the profession sit back in their chairs of luxury and tell us what our patients are willing to pay for our services.

Your patients and mine are willing to pay us all they can for our services and you and I know better than any one else how much they can pay.

Sound economics cannot rise above honest relationships, either in business or medicine, so let's start right and we can end right.

CHARLES S. SKAGGS, President,
Illinois State Medical Society.

THE MEDICAL PROFESSION THREAT- ENED THROUGH PUBLIC PRESS WITH A FEDERAL LICENS- ING SYSTEM

Physicians throughout the country should read with care the appended letter from William C. Woodward, M.D., LL.M., director of the bureau of legal medicine and legislation of the A. M. A., in reference to the threatened federal licensing system to control the professional use by physicians of "narcotic drugs."

This is undoubtedly the last thing in the world that should be permitted to happen at the present time, both for the good of the profession and of the public.

Writes Dr. Woodward:
 The Presidents,
 Constituent State Medical Associations.
 Dear Doctor:

The medical profession has recently been threatened through the public press with a *federal* licensing system to control the professional use by physicians of opium and coca leaves and of compounds and derivatives of them, commonly referred to in this connection as "narcotic drugs."

Now a physician authorized by a state to practice medicine can register under the Harrison Narcotic Act as a matter of right and professionally use narcotic drugs, and the Federal Government cannot suspend or revoke his registration so long as his state license to practice medicine continues in force.

Under the threatened federal licensing system, a federal officer or board would determine who may and who may not register under the Harrison Narcotic Act or under supplementary legislation, and without such registration no one, even a physician lawfully engaged in the practice of medicine, could administer, dispense, or prescribe any drug covered by the federal licensing system.

If an attempt should be made to set up a federal licensing system to control the use of narcotic drugs by physicians, it would probably be under a federal claim of authority to make regulations to carry into effect some of the various international conventions to which the United States is a party, under the provisions of Article VI, Clause 2, of the Constitution, which provides:

"This Constitution, and the laws of the United States which shall be made in pursuance thereof; and all treaties made, or which shall be made, under the authority of the United States, shall be the supreme law of the land; and the judges in every state shall be bound thereby, any thing in the Constitution or laws of any state to the contrary notwithstanding."

Whether a federal licensing system to regulate the practice of medicine to the extent of controlling the use of narcotic drugs could be lawfully established under these provisions of the Constitution, in view of other provisions contained in it, it would be useless here to discuss.

The present recrudescence of the idea of a federal licensing system for the control of narcotic

drugs is the result—in part, at least—of inaction by some state medical examining and licensing boards. Even when evidence has been submitted to them showing that physicians practicing under authority of licenses that they have issued are narcotic addicts, or have been convicted of violating the Harrison Narcotic Act, or both, some such boards have neither suspended nor revoked the licenses of the offending physicians. In some cases, failure to act has been due to the absence of any lawful authority for action, but that has not always been the case. In states in which there is no lawful authority for the suspension or revocation of licenses under the conditions stated, the medical examining and licensing boards have too often apparently made no effort to procure legislation to permit such action. Such conditions as these tend to promote the establishment of a federal licensing system.

It will certainly not be to the best interest of either the medical profession or the public to have the Federal Government, by withholding or cancelling registration under the Harrison Narcotic Act or under any similar statute, create a class of physicians who are actively and lawfully engaged in the practice of medicine under state authority, but who are forbidden by the Federal Government to use in connection with their practice such essential narcotic drugs as opium and coca leaves and compounds and derivatives of them. I am therefore submitting this matter to you for such action as you deem proper.

It might be well for you to learn from the medical examining and licensing board of your state what the situation is there, and particularly what action, if any, it has taken with respect to evidence that has been submitted to it, if any, by the Bureau of Narcotics, Treasury Department, to prove cases of addiction or to prove convictions under the Harrison Narcotic Law among licentiates of the board. With such knowledge you will then be in a position to take such action as may be necessary to forestall demands for the establishment of a federal licensing system.

I shall appreciate it very much if you will let me know what action you take.

Yours truly

WM. C. WOODWARD,

Director.

Copy sent to Secretaries, Chairmen of Legis-

lative Committees and members of A. M. A. House of Delegates.

WOMAN'S AUXILIARY GREETINGS

Mrs. Lucius Cole and her board extend greetings to all auxiliary members and wish for them prosperity and happiness in 1935.

SOCIAL INSURANCE UNPOPULAR IN FRANCE

We quote the following from the A.M.A. regular Paris correspondence under date of December 13, 1934:

SOCIAL INSURANCE LAW UNPOPULAR

There is much discontent in French medical circles and an active discussion is taking place as to what can be done to bring the medical profession into line with the rapid changes taking place in organized society, especially since the World War. Clinics, controlled and directed by groups of physicians, as they exist in the United States, are practically non-existent not only in France but all over Europe. A series of letters in a recent issue of one of the Paris journals reveals the opposition of those who hesitate to abandon the traditions of medicine and the fervent plea of the more progressive physicians to adapt themselves to the social evolution and establish diagnostic centers under private control. The French social insurance law is not very popular, either with those whom it protects against illness and old age or with the medical profession. It differs, however, from similar legislation in Germany in permitting the assured to choose his own physician, who must adjust his charges to a fixed government tariff. The establishment of diagnostic centers all over France by the profession is one solution of the question before the government steps in to organize this method of extending the benefits of modern medicine.

SURGEONS TO MEET IN JACKSONVILLE, FLORIDA

The Southeastern Surgical Congress, through its secretary, Dr. B. T. Beasley, announces the sixth annual assembly of the Congress which will be held in Jacksonville, Florida, March 11, 12 and 13, 1935. The Congress has met previously in Atlanta, Birmingham and Nashville.

The states composing the Congress are Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee and Virginia. A record attendance is anticipated at the Jacksonville meeting. Since March is the most desirable month to visit the land of flowers many surgeons will no doubt combine business and pleasure and attend during this season of the year.

Some of the most distinguished surgeons in the country representing the different surgical specialties have been invited to appear on the program. A partial list of those who have already accepted places is as follows: Doctors Walter C. Alvarez, Perry Bromberg, Hugh Cabot, Willis C. Campbell, George W. Crile,

John F. Erdmann, Paul Flothow, Ralph Green, Arthur Hertzler, C. Jeff Miller, Alton Ochsner, J. C. Patterson, J. Knox Simpson, J. W. Snyder and W. A. Weldon. More than twenty others will be listed when the program is completed. Look for the completed program which will be mailed about February 15, 1935.

For information address Dr. B. T. Beasley, secretary-treasurer, 1019 Doctors Building, Atlanta, Ga.

SOUTHERN ILLINOIS MEDICAL SOCIETY MEETS

At the November meeting of the Southern Illinois Medical Society, which was held in Mount Vernon on the first and second, there was a splendid arrangement for the activities and entertainment for the women in attendance. During the afternoon of the first, the Mount Vernon women drove the visiting ladies in their cars to the Davidson Biscuit Company factory. This was greatly enjoyed by all visitors. Following this trip the guests were entertained at a tea in the lovely home of Mrs. W. G. Parker. After a charming program of instrumental music, Mrs. Lucius Cole, President of the Woman's Auxiliary to the Illinois State Medical Society, addressed the doctors' wives. She told of some of the issues which should be intelligently understood by them and urged the women to organize county auxiliaries if at all possible. Mrs. E. U. Burroughs of Harrisburg and Mrs. I. L. Foulon of East St. Louis, councilors of the ninth and tenth districts, respectively, spoke briefly.

Mrs. Cole later addressed the doctors and their wives at a banquet held at the Hotel Emmerson. A very interesting and humorous talk was given by Mrs. C. O. Boynton of Sparta on the subject "The Pains and Joys of a Doctor's Wife."

MRS. I. L. FOULON, East St. Louis.

TREATMENT OF GONORRHEA: BASED ON LABORATORY OBSERVATIONS DURING THE COURSE OF THE DISEASE

Russell D. Herrold, Chicago (*Journal A. M. A.*, Dec. 15, 1934), believes that one application of an anti-septic daily is sufficient to control mild infections of gonorrhea and is more safe than frequent injections. Severe infections are not suitable for local application of antiseptics, and borderline severe infections should have local treatment discontinued if clinical improvement is not prompt. Intravenous and intramuscular therapy does not produce a dominating influence on the urethral infection, and such benefits as follows its use is due to a favorable influence on the infected adnexa. The more recent gonococcus antigens should be applied conservatively until more general agreement permits a recognized standardization.

OPPORTUNIST

Plumber (arriving late): "How is it?"

Happy Husband: "Not so bad. While we were waiting for you to arrive, I taught my wife how to swim."—*Penn. Punch Bowl*.

Original Articles

PREMATURE INFANTS

A Report of Sixteen Hundred and Twenty-three Consecutive Cases

JULIUS H. HESS, M.D.

CHICAGO

In the period from 1922 to December 31, 1933, sixteen hundred and twenty-three infants were admitted to the Premature Infant Station at the Sarah Morris Hospital. During this same period, 200 premature infants previously graduated were readmitted because of acute illnesses or for surgical care. Seventy-three immature, full-term infants were also cared for. This report will deal only with prematurely-born infants received shortly after birth.

Etiologic Factors Influencing Termination of Pregnancy. The occurrence of premature birth depends on many causes, which may be divided into those resulting in the expulsion of a healthy premature infant, and those which have a damaging effect on the product of conception. In the first class may be included various injuries, falls, heavy lifting, overwork, and physical exhaustion from other causes, as well as sudden emotional disturbances. Premature rupture of the membranes, either accidental or intentional, occurring in conditions which do not affect the nutrition of the ovum, as in pelvic and spinal deformity in the mother, and placenta previa, are other causes which result in expulsion of the fetus.

The conditions within the second category react to a greater or lesser degree on the fetus, some producing only momentary weakness, as the milder acute infections, and others causing a weakened physical condition as a result of their interference with the nutrition and development of the fetus.

In the United States the care of premature infants has not received the general attention of the medical profession which it merits. Hospital facilities for the care of such infants are lacking; first, because special obstetrical hospitals in most instances decline outside cases, and second, because comparatively few general hospitals are

properly organized to undertake the special care required.

In a study of premature and congenitally debilitated infants, at least two factors in the life history of the fetus must be considered:

1. The term of intrauterine life. The younger the fetus when it leaves the uterus, the greater the difficulties to be overcome in carrying out the body functions necessary to life and, therefore, the lower its vitality. Biologically, age must be reckoned from the time of conception rather than from birth.

2. The state of its functional development at birth, as evidenced by the presence or absence of inherited disease or injuries related to birth. Full consideration must be given in the case of each individual infant to the causes in the parents, and the infant as well, which might lead to premature delivery or poor physical development.

Provisions Necessary for Their Care. Every attempt should be made to prevent external trauma and to approximate intrauterine conditions. They must be protected against exposure from the moment of birth. The surrounding temperature must be relatively high with minimum fluctuation. A fairly constant relative humidity should be maintained and provision should be made for a fairly free circulation of air. They must be protected from all shocks, physical and nervous, and their food must be supplied in a form and of a quality most easily digested.

Anticipation of the Infant's Birth. Asepsia. They succumb more readily to infection and are much less resistant than are full-term infants. Infection of the respiratory passages following careless exposure of and aspiration of food are frequent complications. When indirect methods of feeding are employed, whether by dropper or gavage, careful attention to details must be employed.

The preservation of body temperature must be begun immediately after birth of the infant, on the confinement bed itself, as the extent of the initial temperature loss is of no mean consequence to a premature infant. After severing the cord, the infant should be placed in a heated basket or incubator-bed, which should be a part of the equipment of the delivery-room.

In the home, hot-water bottles, a properly pro-

tected electric pad, or an improvised incubator will answer the purpose. It should be remembered that these infants are easily burned and such burns are usually fatal.

The time of *tying and section of the cord* will depend entirely on the general condition of the infant and to some extent on the obstetrician's ability to prevent undue exposure of the infant to cold. In the absence of marked asphyxia, it is well to allow the pulsation of the cord to become weakened or to disappear before ligation. This usually requires from 1 to 5 minutes, during which time the infant will receive from 30 to 60 c.c. of blood from the placenta. This blood should be conserved, when possible without risk.

The cord should not be tied too closely to the skin. Great care must be exercised in tying the cord to prevent cutting it in two with ligature, which is easily accomplished in the premature; it is always well, therefore, to leave sufficient space for a second ligature behind the first in case of an accident.

The possibility of asphyxiation of the premature infant must be borne in mind throughout the entire labor. Any accumulation of secretions or aspirated material must be removed by inversion of the child and, if necessary, by aspiration by means of a catheter. In more extreme degrees of asphyxia, early separation of the cord may be necessary so that artificial respiration and a hot bath may be instituted.

The irritation of the catheter in the pharynx will frequently reflexly stimulate respiration. It should, however, be remembered that the use of the catheter is not without danger to the operator because of the frequency of syphilis as a cause of premature birth. It may be necessary to institute artificial respiration by regular and gentle compression of the chest. Swinging and other forceful methods of inducing artificial respiration must never be practiced.

Administration of oxygen, about 120 bubbles per minute, may be of value if administered through a catheter inserted in the nose or mouth, or a properly constructed mask. *Careless handling and traumatizing the infant or too rapid performance of artificial respiration is productive of more harm than good and must, therefore, be avoided.* There must be definite indications for all manipulations undertaken. If the infant ap-

pears to be recovering spontaneously it should be left alone.

The writer has recently designed an oxygen unit for use with the Hess heated bed. This permits of any desired oxygen-air mixtures being maintained within the bed. A two-liter-per-minute flow of oxygen can be maintained for



Fig. 1. Electrically heated water jacketed bed, equipped with oxygen therapy unit, for the care of premature infants. (Hess)

about \$1.50 for a 24-hour period. (See Figure 1.)

All premature infants, whether asphyxiated at birth or not, should be carefully watched for cyanotic attacks during the first days of life, as such attacks may develop suddenly and without warning. They may be due to a disturbance in the pulmonary circulation, congenital atelectasis, or intra-cranial hemorrhage. At other times, they are precipitated by intra-abdominal distention which may interfere with cardiac or respiratory action. Oxygen therapy offers the best single method of resuscitation.

Care of Skin and Genitalia. It is of the greatest importance that premature infants shall be handled as little as possible. Very small infants should not be bathed during the first day

or two, unless this is carried out with the special intention of resuscitation in case of atelectasis or asphyxia from other cause. It is preferable to cleanse the small infants gently with warm liquid petrolatum or olive oil. With infants weighing over 1500 grams, a warm cleansing bath may be instituted earlier. The genitalia should be carefully cleansed with sterile water without trauma. The same is true of the buttocks, after which a small pad of cotton or combination is applied to the genitalia and buttocks.

Daily Routine. The body temperature must be taken through the rectum and should be recorded morning and evening. An individual thermometer should be furnished for each infant. Undue exposure and trauma should be avoided from the moment of birth. Fluctuations in body temperature are more marked than in the full-term infant, with a tendency toward hypothermia. A minimum of 97° F. should be considered the lowest compatible with progress. Attempts should be made to limit the daily fluctuations to 1½° F. It is to be remembered that a subnormal temperature which is not incompatible with progress is common to the smaller low-weight infants. Attempts to raise the body temperature to the normal level may by overheating result in disaster through excessive loss of body fluids in the presence of a limited fluid intake.

The temperature of the heated bed should be varied with the needs of the individual infant. Small prematures and congenital weaklings with marked hypothermia should temporarily have a surrounding temperature varying from 85° to 95° F. Older and stronger infants are better placed in a bed at 75° to 80° F. As the infant develops its vital functions and the subcutaneous fat increases, the temperature of the bed should be gradually lowered to that of the nursery, which should be kept at about 75° F.

It may be necessary to place the infant in a hot bath to raise the temperature and to stimulate respiratory and cardiac function following syncope.

Removal from the bed should follow definite indications. Changing napkins, and the ordinary routine measures can be carried out in the bed.

The body must be insulated by proper clothing.

The body fluids, after the first few days, must be maintained by an intake of from one-sixth to one-eighth of the body weight in fluids in 24 hours, and this must include a caloric intake of more than a sustaining diet, 70 calories per kg. after the first few days of life.

Place of Birth of the Infants. The higher mortality of the group of infants born at home during the earlier years of the station's existence, indicates the importance of the anticipation of their requirements with the first signs of labor, with emphasis on the maintenance of a normal body temperature.

Of the first group (266 infants, from 1922 to 1926), 126 were born in hospitals, and 140 in homes. The mortality of the hospital births was forty-two per cent. and that of the homes 53.5 per cent.

Of the second group (496 infants, from 1927 to 1929), 238 were born in hospitals, and 237 in homes. The mortality of the hospital births was 25.1 per cent. and that of the homes 40.5 per cent.

Of the third group (862 infants, during 1930-1933), 352 were born in hospitals, and 510 in homes. The mortality of the hospital births was 22.5 per cent. and that of the homes 24.5 per cent.

The gradual reduction in the mortality among infants born in the home has undoubtedly resulted from the infants being received in much greater numbers during the first 24 hours after birth, and from the fact that the hospital sends for a very high percentage of the infants, bringing them to the hospital in a small hand-ambulance designed for this purpose. It is to be emphasized that approximately 80 per cent. of all our cases are cared for without cost to the parents who represent largely the poorer families in a large city.

Nursery Units for the Care of Premature Infants. In describing the hospital care of premature infants, the requirements of small special wards in a children's hospital or in the obstetrical divisions of a general hospital need to be emphasized. The lack of proper arrangements for their care in general hospitals throughout the country represents a striking lack of foresight.

The equipment to be recommended is to a large extent dependent upon the method which

is to be used for maintaining the body temperature of the individual infant.

1. Special nursery units in which ventilation, temperature, and humidity are automatically regulated.

2. Ordinary hospital nurseries in obstetrical or pediatric departments in which the external temperature is fairly constant and which are without special means of ventilation and humidity control.

In wards of the second type, individual heated beds must be supplied for the infants, and they are also necessary for a limited number of the infants cared for in wards of the first type, as it is impracticable to supply the same degree of temperature for all infants. A combination of the superheated, regulated room with special beds for the exceptional infants, represents the ideal.

It has been our desire to demonstrate that the care of premature infants can be handled in a practical manner in any well-organized, obstetrical department, or children's hospital. A station should provide at least one or more rooms and as far as possible the following equipment:

Individual heated beds for small infants; bassinets for graduates; oxygen therapy units; heated dressing table; sink with bathing slab; shelves for toilet articles; supply closet; scale; high and low temperature registering thermometer; hygrometer, wet and dry bulb; time clock, for recording time of feedings; electric heater for emergencies; screens; electric refrigerator; transportation ambulance for prematures; heated beds for home use (loaned to graduates for temporary use); ultra violet-ray lamp; electric breast pump.

Nursing Staff. The selection of a personnel for the nursing staff of a unit established for the care of premature infants requires great care. Nurses assuming these responsibilities must be intensely interested in their work. They must be willing to make many necessary sacrifices while the infant is passing through the critical stages. They must, at all times, be prepared to meet the emergencies of asphyxia and to counteract the spells of cyanosis. These two factors in themselves require almost constant diligence, otherwise the work of previous days will go unrewarded. They must use good judgment to prevent overfeeding and underfeeding, as to a

very great extent the size of the individual meal will be dependent upon the physical condition of the infant at the time of feeding. In no other class of patients is it so necessary to change or modify on short notice previous orders for diet. The nurse must know the indications for and the methods of administering catheter feeding, colonic flushing, tubing, and the application of artificial respiration.

The ideal nursing staff for such a station is, therefore, one consisting of a well-trained supervising nurse and a corps of assistants desiring this training, and who are willing to remain in this service for a long period of time. This has been made possible in our station by the endowment fund of the Infants' Aid Society which provides that the income from their fund is to be used to pay the salaries of the nurses and the wet nurses.

Service in the Home. During the infant's stay in the hospital, our nurse visits the mother, usually within the first twenty-four hours after the infant is received, and instructs her in the care and expression of her breasts so as to encourage her in maintaining the supply of breast milk. Regular four-hour expression is encouraged, the mother being supplied with sterile bottles so that she may send or bring her milk to the station. This stimulates the milk supply and encourages the mother in her effort to produce milk for the future use of the infant. As soon as the mother's physical condition permits, she is asked to come to the station at stated times to receive instruction in the care of her small infant, and to nurse it directly at the breast if its development warrants it. This is a valuable educational feature as far as the infant is concerned. When possible, the mother is encouraged to make a daily visit.

Before the infant is discharged from the station, the nurse visits the home and instructs the mother in the necessary preparation for the infant's return.

Following the discharge from the hospital, the nurse visits the home one or more times weekly, as may be indicated, until the infant's health and the weather conditions make visits to the special clinic for graduates at the Sarah Morris Hospital advisable. This applies only to those infants who do not have a private physician and

to those whose private physician desires that the infant be taken to the clinic.

Emergency Therapeutic Measures. Many infants will require shock therapy for hypothermia, dehydration, inanition, and infection.

Hypodermoclysis. Subcutaneous introduction of normal saline or Ringer's solution in amounts of 15 to 45 c.c. at regular intervals will often assist in bridging a crisis. The solutions should be administered slowly at body temperature in order to avoid further shock. *This is an emergency measure, not a routine procedure.*

Intraperitoneal administration of fluids is to be avoided, because of the dangers of intestinal perforation and interference with cardiac and respiratory functions in the small premature infant.

Oxygen Therapy. The value of the administration of oxygen in concentrations higher than that found in fresh air (20 per cent.) has long been appreciated in various respiratory and to some extent in cardiac conditions in which anoxemia was present. In the care of premature infants and the new born in the past, oxygen therapy has been more or less crudely administered because of the absence of suitable oxygen-containing chambers. For this reason, the administration has been largely carried on through the use of nasal catheters and more or less poorly adaptable masks, and, as a consequence, there was an extreme waste of oxygen, the concentration varied greatly, and much difficulty was experienced in attempts at long-continued administration. The infant oxygen unit, Figure 1, was designed to convert the Hess water-jacketed bed into an oxygen therapy chamber.

All infants weighing under 1200 grams, those showing respiratory and cardiac embarrassment, and all others whom it was believed might be benefited by oxygen therapy are placed in an oxygen chamber.

During the three years, 1931-1933, 346 of our 792 infants admitted have been placed in the oxygen chamber. Most of the infants have been kept there for more than twenty-four hours and in a few cases for as long as six weeks or more. With the exception of a few instances, the infants were kept in a 40 per cent. oxygen atmosphere (ordinary air 20 per cent.).

In the few cases where the mother had received morphine-scopolomine anesthesia, which

resulted in a toxic state in the infant, carbon dioxide 5 per cent. and oxygen 95 per cent. was used.

Intramuscular and Intraperitoneal administration of Blood. In the presence of intracranial hemorrhage, melaena, inanition and various infections, the muscular administration of human blood in amounts varying with the indication, at regular intervals, if necessary, offers one of the outstanding therapeutic measures in the care of premature infants. It is most useful when injected without the addition of sodium citrate. The amount to be used will vary from 4 c.c. in small infants, to 15 c.c. in larger infants. It is to be emphasized that the injection of blood is to be repeated at intervals of from 12 to 24 hours if results are not satisfactory. Fortunately there is usually someone at hand who is willing to furnish the small amount of blood required, and its use should not be too long delayed.

Other Emergency Measures. In the presence of cyanosis, syncope, and other symptoms of cardiac and respiratory failure, one or more of the following measures may be instituted while the infant is in the oxygen chamber. Inhalation of aromatic spirits of ammonia, 1 or 2 drops of which, on cotton or gauze, are held before the nostrils; further one drop of a 1:1000% nitroglycerine solution may be placed on the tongue, or $\frac{1}{2}$ mm. of 1:1000% (5 mm. of 1 to 10,000) solution of adrenalin hydrochloride, hypodermically. The use of camphor, caffeine, atropin, or other respiratory stimulants hypodermically does not offer much practical help. Over-stimulation by the use of drugs is dangerous.

Cyanosis due to accumulation of mucus is best relieved by removal of the infant from the bed, holding the child in an inverted position, and, if necessary, aspirating the pharynx by the use of a medicine dropper, with its tip protected by rubber tubing. It may also be necessary to use cutaneous stimulation by friction or gentle slapping in order to reinstate breathing. The same procedure may be necessary in the presence of aspirated food during feeding or following regurgitation.

Methods of Feeding. The question of when to start regular feeding is of great importance to these infants, because of the tendency to develop acute inanition. Therefore, a regular feed-

ing regimen must be started early. Human milk is essential to a low mortality.

It is our custom to withhold water and milk for twelve hours from infants received shortly after birth, until the respiratory and circulatory functions are well established. During the second 12 hours, 2 or 3 feedings of breast milk may be given if the infant's condition warrants.

Feeding Schedule, Premature Department, Sarah Morris Hospital. First 12 hours after birth: No feeding, neither milk nor water. Second 12 hours after birth:

13th hour	Boiled water	2- 6 c.c.
16th hour	Boiled water	2- 6 c.c.
18th hour	Breast milk	2- 6 c.c.
20th hour	Boiled water	2-10 c.c.
22nd hour	Breast milk	2-10 c.c.
24th hour	Boiled water	2-10 c.c.

Infants received several days after birth, which is true of many cases, must, of necessity, be fed according to their condition when received at the station. The first few feedings should be minimum. Dehydration is often marked and demands special consideration.

Feeding from Second to Twentieth Day. For practical purposes, the second to the twentieth days may be grouped together as the second feeding period.

From the second day the infants should be fed regularly day and night, the number and time of feedings depending to a great extent on whether the food is given with or without the use of a catheter, on the gastric capacity, and on the infant's general condition. Practically all infants at first receive eight feedings daily.

Beginning (in most cases by the second day) with from 20 to 40 c.c. of human milk per kilogram of body weight, the quantity may be increased from 8 to 15 c.c. daily per kilogram until, usually by the twentieth day, feedings averaging from 80 to 140 c.c. per kilogram can be given.

During the first days, further fluids, such as boiled water or one-half strength Ringer's solution, are administered to compensate for the loss of body fluids through the kidneys, bowels, lungs, and skin. The infant requires about one-sixth of its body weight of water, inclusive of that contained in the milk, in 24 hours while in the heated bed. Such quantities, however, should not be attempted on the first days; usually it will be possible to approximate one-eighth of the body weight in total fluids by the fourth day. The early feedings must necessarily be small and

the increased feedings given gradually. The infants must be considered individually, as it is impossible to formulate definite rules for feeding, at least during the first ten days.

Increases in food are based on the weight of the infant and the infant's food tolerance. The smaller and the more premature the infant, the more slowly the feedings are increased. For any premature under 1000 grams, the amount is never increased more than 1 c.c. at a time. Irrespective of the size of the premature, it is always started on a very small quantity and increased gradually, never over 3 c.c. at a feeding.

The feedings should be gradually increased until the infant is getting from 90 to 100 calories per kilogram body weight daily. This can often be accomplished by the tenth to the twentieth day.

105 c.c. (3½ ounces) of breast milk	= 70 calories.
135 c.c. (4½ ounces) of breast milk	= 90 calories.
150 c.c. (5 ounces) of breast milk	= 100 calories.
180 c.c. (6 ounces) of breast milk	= 120 calories.

Overfeeding either through too rapid administration, too large individual feedings, or too rapid increase in the day's food, should be as conscientiously avoided as underfeeding.

In some instances, it will be necessary to supplement the feedings by giving water or one-half strength Ringer's solution between feedings. In the presence of persistent vomiting, it may be necessary to resort to subcutaneous administration of fluids.

Human Milk and Lactic Acid Mixtures. To increase the protein content of the diet, skimmed lactic acid milk (buttermilk) is routinely added to the feedings of many of the infants in amounts of one part skimmed lactic acid milk and three parts breast milk. The lactic acid milk used is prepared by the addition of a lactic acid bacillus culture to sterilized skim milk. Powdered skimmed lactic acid milk can be used. It has also been found that a mixture of one part evaporated milk to three parts breast milk is well taken by older infants showing stationary weight. Whole lactic acid milk culture or powdered may later be used to replace the fat-free lactic acid milk.

The diet of the premature infant making a satisfactory gain should not be changed arbitrarily without a well-defined indication.

After the twentieth day, the food requirements of the infant are well established and a careful

observation of the weight, stools, disposition and, what is equally important, its body temperature, will decide the future food requirements. The water requirement will, to a great extent, be dependent on the supply of artificial heat and the presence of fever.

As the infant takes on weight and becomes fat, with a rounding of the features and the body, the total amount of the milk administered can be held at one-sixth and not infrequently, one-seventh of the body weight, and normal increases in weight can still be maintained.

Artificial Feeding. In the feeding of premature infants there can be no comparison between the results to be expected from human milk, or from a mixture of human and lactic acid milk, and those to be obtained with artificial food. This is especially true of infants with a weight below 1500 grams. Many varieties of artificial diet have been suggested by different clinicians, such as simple milk dilutions, cream and top-milk mixtures, skimmed milk, evaporated, condensed milk, dried milk, reconstructed milk, and buttermilk preparations. To most of these diluted mixtures, carbohydrates are added. The results with these various diets are to a great degree dependent on the physician's intimate understanding and directions for the use of the individual food.

It should be remembered that the figures quoted for the feeding on breast milk are the maximum that can be assimilated and are excessive quantities for artificial feeding in the first weeks of life. When artificially fed, these infants must at all times be closely watched for evidence of overfeeding, and the first evidence of digestive disturbances or of intercurrent infections should lead to the feeding of human milk, whenever possible.

From the foregoing statement, it is evident that smaller and slower increases in weight may be expected of the artificially fed.

The best results with artificial feeding have been obtained by the *use of small feedings of concentrated mixtures*, which precipitate with a finely divided curd. A low fat content has been found desirable in such mixtures. When fresh sweet milk is used as a basis, it should be boiled for five minutes over a direct flame. *Evaporated milk, dried sweet or lactic acid milk, or con-*

densed milk can be used when liquid milks of good quality are not available or well taken.

Carbohydrates are at first added in amounts of two per cent. and this is increased to five per cent. as required.

Additional Foods. To counteract the effects of boiling, the feeding of orange juice should be instituted by the third week beginning with five drops daily and increasing to one or two tablespoonfuls, twice daily, by the end of the eighth week, in larger infants. Cod-liver oil, as an antirachitic, should be fed before the end of the third week, beginning with two drops daily, and increasing to sixty drops daily by the eighth week. It is best divided in two feedings. Viosterol, or Halibut-liver oil and viosterol has been used in a considerable group of the infants, starting with 2 drops daily and increasing to 10 or 15 drops daily by the eighth week, using the preparation standardized to 250 times the vitamine D content of cod-liver oil. The infants show better progress when viosterol is used in combination with cod-liver oil or halibut-liver oil.

To meet the iron requirements of these infants, raw egg yolk, at first in small quantities, is added to the diet or both breast and artificially fed infants in the amount of one yolk to each quart of milk. One grain (0.06 Gm.) doses of carbonate of iron or iron and ammonium citrate daily may also be used to advantage. Liver in combination with iron is a good preparation. Each level teaspoon of the Lilly's formula contains approximately 3.75 Gm. (58 grains) of liver fraction, and 0.65 Gm. (10 grains) of ferrous ammonium citrate. The initial amount should be from $\frac{1}{4}$ to 1 Gm. (4 to 15 grains) daily, and increased up to 4 Gm. (1 dram) daily in older infants. Either the egg yolk or iron should be introduced into the diet by the fourth week.

As early as the third week, our infants are exposed to ultraviolet rays with the quartz lamp. The time of exposure varies with the indications in the individual case. At first these exposures should be limited to 15 seconds, and it is rarely necessary to give more than 2-minute exposures three times a week. Over-exposure may result in irritability, vomiting, and increased body temperature. The dose also varies with the amount of viosterol and cod-liver oil fed.

Infants too Weak to Nurse at the Breast. When the feedings are well taken, they can be

given without removing the infant from the heated bed. The cause of inability to nurse may be due to several factors:

Infants Unable to Swallow. This is usually because of improper development of the center in the medulla, or lack of coordination on the part of the pharyngeal muscles and tongue. This is usually made evident by the milk flowing from the dependent part of the mouth. In such cases it is generally necessary to resort to catheter feeding.

Dropper or catheter feeding is required in:

Those too weak to nurse. Those who *will not suck*. Those *vomiting after every feeding*. Those becoming *cyanotic after feeding*. In the latter cases it may even be necessary to resort to such methods as gentle friction, artificial respiration (best performed by gently compressing the thorax), warm baths, oxygen, et cetera.

Methods. One of the following methods can be selected:

1. *A Medicine Dropper.* This is possibly one of the best methods for feeding weak infants, as it is simple of application. As in all other methods, the food should be administered very slowly. Soft rubber tubing should be slipped over the end of the dropper to prevent injury.

2. *Nursing from a Bottle.* For this purpose, nipples with a small bulb are used. We have at times used the rubber bulb of a medicine dropper, if of good quality, by perforating it for nipple purposes. The bottle to be used can either be an ordinary 1 or 2 oz. medicine bottle, or better, 30 or 60 c.c. special graduated bottles which are now available for this purpose.

3. *The Break Feeder.* This was much used formerly, but has become pretty generally discarded. It had the disadvantage of a tendency to too rapid feeding if not properly controlled.

A rather slow but satisfactory method of feeding the infants is by *expressing the milk directly from the nipple into the infant's mouth* during the feeding period. This is practiced to advantage when teaching the infant to take the breast.

4. *Catheter Feeding (Gavage).* This is the simplest and best method of procedure in the smaller infants, if carefully practiced by an experienced nurse. Catheter feeding should be instituted as soon as fatigue or cyanosis is noted, following other methods of feeding. A catheter

(No. 12 French, No. 8 American, No. 5 English) about 14 inches in length may be attached to the glass barrel of a small syringe. All food should be carefully measured and administered slowly with a *minimum elevation* required to obtain a free flow of the milk. The infant should be upon its back on a flat surface with the head in the median line. The passage of the catheter is usually effected without difficulty by passing it in the middle of the pharynx, gradually pushing it into the esophagus. The poorly developed reflexes rarely cause severe retching. The distance to which the catheter is to be passed is of great importance when we consider that this procedure must be repeated at least six to eight times daily over a considerable period of time. It has been our rule to measure the distance from the bridge of the nose to the tip of the ensiform cartilage, which is usually in the neighborhood of 10 to 15 cm. (Full-term newborn infants average about 16 cm.) The catheter is marked at this point with indelible ink, and a second circle is drawn 2 cm. above this point, and a third 4 cm. above the first.

The catheter is passed with the glass barrel empty in order to avoid spilling food into the pharynx and to allow of the catheter's being passed into the stomach when indicated by distention, following which the barrel is raised and the air allowed to escape. The stomach when dilated is clearly visible through the thin abdominal wall. When the catheter is passed to the first mark, the tip reaches to about 1 cm. above the cardia. When passed to the second mark, the eye will have entered the stomach, and when passed to the third mark, the tip will be well within the stomach. *It becomes evident that each infant should have its individual catheter*, as it is necessary at all times to have a fairly definite idea as to the distance it has been passed, as well as to avoid the danger of cross infection. Most of the feedings are given with the tip of the catheter in the lower end of the esophagus, thereby irritation of the gastric mucosa and stimulation of the reflex at the cardia, are avoided. A nurse soon learns the distance that the catheter should be passed under the varying conditions enumerated. The milk is now allowed to flow into the stomach, the glass barrel being raised usually from 6 to 8 inches above the level of the body. After the

feeding, the catheter is firmly compressed to avoid spilling milk into the pharynx during its removal. In the presence of gastric distention, raising the child before the feeding will often avoid the necessity of passing the catheter into the stomach, and elevating the child to the vertical position after feeding will allow of the eruption of air and frequently prevent cyanotic attacks. In elevating the child, flexion of the body must be avoided. Too rapid feeding with over-distention of the stomach, is more dangerous than too slow feeding. Usually two or three minutes is all that is required. A single nurse can carry out catheter feeding once she becomes skilled. Every nurse should be so skilled. Turning the infant on its right side following the feeding reduces the emptying time. The position of the infant should be changed at least once between feedings in order to avoid hypostatic pulmonary congestion.

The number of feedings. This will, of necessity, depend in many instances upon the question of catheter *versus* other methods of feeding. Larger infants fed by catheter can often be given sufficient food at four-hour intervals to meet their needs. In small infants, fed by dropper, bottle, or other methods, we have experienced great difficulty in administering a sufficient quantity of food by the long-interval feeding. As the attendants in charge are frequently not to be trusted with the catheter feeding, the short-interval feeding must be resorted to.

The smaller hand-fed infants are fed at two-hour intervals during the day and three hours at night. The larger are on the three-hour basis. When catheter feeding is the method of choice, even in the smaller infants six to eight is usually the maximum number needed in 24 hours. It must be remembered that all feedings are dependent on the general development of the infant in relation to its digestion and metabolism and its ability to retain the food administered, as well as on the attendant complications to feeding, such as asphyxia, cyanosis, and gastric distention.

Vomiting. Severe, persistent, may be due to intracranial hemorrhage, or systemic infection. Abdominal distention and pylorus spasm may result in repeated attacks.

Toxemia of the infant in cases of toxemia of pregnancy is common cause of vomiting. About

75 per cent. of the infants regurgitate some of their food during the first three days. Vomiting is treated by an immediate decrease in feeding. Small concentrated feedings are often better taken than diluted mixtures. While on concentrated feedings, water, or $\frac{1}{2}$ strength Ringer solution should be given between feedings.

Diarrhea. In the presence of diarrhea, the infant should be starved for from 12 to 24 hours. Ringer solution, $\frac{1}{2}$ strength, or weak tea is given by mouth ($\frac{1}{8}$ to $\frac{1}{6}$ of body weight during the 24 hours). In some cases it is better to withdraw all fluids, and administer saline solution, subcutaneously, and intramuscular blood. Feedings are again started with very small amounts, 3 to 8 c.c. either with breast milk, equal parts breast milk and skimmed lactic acid milk, or whole skimmed lactic acid milk, without carbohydrates at first.

Syphilis. There were 118 (8.21%) cases of congenital syphilis among 1437 admissions.

Treatment. During the years 1922 to 1932 the treatment was as follows: Mercury inunctions, 5 grains, once daily, for seven days. Mercury with chalk, $\frac{1}{8}$ grain daily, gradually increased to 1 grain, three times daily at the end of first year. Continuous for one year. Sulph. arsphenamine, 0.002 grams per kilogram of body weight once a week for six weeks, with six weeks of rest, three times during the first year. During 1932 and 1933 stovarsol (acetarsone) (21.1% arsenic) was the only therapy administered. Stovarsol by mouth is given in relation to the body weight of the infant. The dosage used was the following

0.005 grams per kilogram daily for first week.
0.010 grams per kilogram daily for second week.
0.015 grams per kilogram daily for third week.
0.02 grams per kilogram daily for fourth week.

And continues at this dosage for five more weeks, after which a rest period of six weeks is instituted. Three such courses are given the first year, and are continued at least one more year.

The blood Wassermann and Kahn reactions have been negative after one course of therapy in all the infants treated with stovarsol, or with mercury and stovarsol, and all have remained so.

Intracranial Hemorrhage. Intracranial hemorrhage was present in 168 (43.5%) of 386 autopsies. It is quite apparent that nature had been very kind to this group of infants. Eighty-six died on the first day, and 64 between the sec-

ond and seventh days. One hundred one weighed less than 1500 grams.

Intracranial Hemorrhage in Surviving Infants. Among 1134 infants who were graduated, 128 were considered as having had intracranial hemorrhage. Sixty-nine of these had been under close observation during the past four years and have had from 1 to 4 physical and psychometric examinations.

42 show no demonstrable physical evidence of injury to central nervous system. 11 show evidence of severe physical injury, with mental retardation in 7, and 4 showing average intelligence. 7 show evidence of moderate physical injury, with mental retardation in 4, and 3 showing average intelligence. 9 show evidence of slight physical injury, with mental retardation in 2, and 6 showing average intelligence, and 1 classified as superior.

DISCUSSION

Dr. Gerald Cline (Bloomington): I feel quite honored, but yet very timid in attempting to discuss the wonderful presentation we have listened to this morning.

As we know, Dr. Hess has had a world of experience, and does have the largest premature ward in the world. A visit to this ward at the Michael Reese Hospital is well worth your time.

One thing he has brought out to us this morning that I think is quite important, and yet something that we men in smaller communities have perhaps our biggest difficulty with, and that is a trained assistant or trained nurses. There is no question but what Dr. Hess has the best nurse at his hospital that can be obtained. She has been with him for years. We have to put up with a different nurse in most every instance, which makes an additional problem with each case.

The incubator problem, as he has shown us, is somewhat more complicated than in the larger hospitals when working with prematures in the home or in the smaller communities. The body temperature has to be maintained some way. Incubators are fine but in a home at times we have to get along with hot water bottles or even Mason jars. Electric light bulbs with reflectors in city homes and Mason jars in country homes make valuable heating units. An ordinary bathroom thermometer laid alongside the bed serves the purpose very well.

Cyanosis in these prematures, we all know, is another important factor. While Dr. Hess has oxygen and especially equipped incubators which greatly aid the cyanotic baby, I find that passing a catheter into the esophagus, letting out some of the gas, is even more of an advantage to the infant than heart stimulants that we might attempt to give, for we are not

ordinarily fortunate enough to have any oxygen to help us out.

I am sure financial problems confront us all. Just yesterday I sent a premature home because the mother could not afford to stay in the hospital and also felt she could not afford to keep the baby in the hospital, so with a grandmother as a second helper I had to be content with such inexperienced help.

Another valuable hospital aid so often lacking in home and smaller community practices is a wet nurse. It is almost impossible to secure the services of a wet nurse, particularly at the time she is needed most. Naturally this necessitates getting along with modified milk formulas. Electric breast pumps are out of the question. However, the old-fashioned hand pump and especially the newer water suction pumps are quite valuable in the homes equipped with running water.

During the first three or four days after delivery, we all know, the mother has no milk, so one of my pet ideas is to use 5 per cent. glucose and 1 grain sodium citrate fed by medicine dropper in small doses frequently. Later when I am unable to get enough breast milk, I have found that Borden's Eagle Brand, sweetened, condensed milk is a very valuable complementary food. Concentrated feedings of evaporated milk also help the little youngster along when he is seemingly unable to handle very much volume.

As to etiology of the premature, it is not my experience to see as much syphilis as perhaps is seen in the larger communities. I do not know whether we are any more moral in the smaller communities or not, but the woman on the farm who works all day, tired and worn out after caring for half a dozen children and feeding her husband and three or four hired hands three times a day, is the one who usually gives us our premature babies. We do have toxemias in pregnancy but even in later years I am sure this rate has decreased because of the better education the average mother has of these matters. Multiple pregnancies, however, are quite frequent, particularly in the rural districts. We do not have the foreign population that so often contributes to the multiple pregnancies of the city.

Dr. Hess' report on 1600 prematures, of course, is far out of my list for I see ten or twelve of these little youngsters in a year. I should have more accurate statistical rates, however, but I believe after it is all said and done we men in the smaller communities can be very proud of our death rates with these prematures, especially when we consider all the difficulties we have to cope with in comparison to a practice in a large city hospital.

Again, I have enjoyed listening to Dr. Hess and always feel that he has a timely message for us.

Dr. Ray Armstrong (Champaign): I want to ask one question. Dr. Cline mentioned we have no facilities for getting breast milk. I wonder what type of feeding Dr. Hess would recommend.

Dr. Dorothy Welker (Cook County Hospital,

Chicago): Perhaps I should say regarding the premature station at Cook County Hospital, we received our inspiration from Dr. Hess' Sarah Morris station. Two years ago Dr. O'Byrne enlarged the premature station that was here at that time and since then under the direction of Dr. Blatt its capacity has been steadily increased.

As Dr. Hess has said, we now have thirty-five prematures and sometimes the census runs as high as fifty. Our monthly mortality for the last year has been fifteen to twenty-five per cent. Fifty per cent. of this mortality is classed under twenty-four hour deaths. We get most of our cases from the hospital maternity wards. We find the most frequent causes of prematurity to be maternal toxemias, multiple pregnancies and lues. About fifteen per cent. of our prematures are delivered outside the hospital.

Dr. Hess has said the most important thing in raising prematures is to supply plenty of breast milk. We get our supply from three sources: 1. wet nurses, 2. maternity wards, and 3. from mothers who bring their babies into the hospital. Every effort is made to keep these mothers lactating. Two nurses are assigned to breast expression in the maternity wards. They train the mothers and discuss the importance of breast milk with them. The mothers are urged to pump their breasts in the wards and to continue to do so when they leave the hospital. Social service workers are sent outside to stimulate the mothers to keep on with the expression of breast milk, and infant welfare aids in this work. In the Children's Hospital we have one graduate nurse on full time who interviews all the mothers bringing in infants under one year of age. If these mothers supply over eight ounces of milk a day, they have a physical examination, a Wassermann is taken, and they return each day to express their breasts, as long as their infants remain in the hospital.

Last month there were 4,197 ounces of milk collected from wet nurses, 4,235 from the maternity wards, and 1,386 from the mothers. The latter quantity helped somewhat to cut down the expense of employing wet nurses. We have a method of canning breast milk which seems to be satisfactory. The raw milk is cold packed in mason jars for one hour. We have used this product after it has been on ice for one month without producing any ill effects.

Breast milk solely is used for the first three weeks. Eight feedings of one ounce each are given to an average premature of three and a half pounds. To this, one to two ounces of skimmed lactic acid milk is added, and on the fourth week one-eighth ounce of dextromaltose. From then on the diet is gradually increased. This method was obtained from the Sarah Morris Premature Station.

We send our infants home when they weigh six pounds, because the infant welfare stations cannot follow them when they are under this weight. At the Sarah Morris Hospital, they have a more adequate system of social servicing, so that they can discharge their infants at five pounds. We hope in

time to have as efficient a system of following the prematures after they leave.

The most important thing we have found in taking care of prematures, is that at the first indication of an enteric disturbance, they are starved. Even a semi-liquid stool is a danger signal in a premature, and the feedings are automatically discontinued if the semi-liquid stools continue. Eight, twelve, twenty-four, and even forty-eight hours go by without the infant being fed. Unsweetened tea by mouth and subcutaneous injections of Hartmann's solution and normal saline are used. Saline is used instead of glucose because of some opinions that glucose increases the tendency to diarrhea.

We are indebted to Dr. Hess for allowing us to use his system in these cases, and to Dr. Blatt for his sustained interest and constant encouragement in the Cook County Hospital premature station.

Dr. Hess: To a certain extent, Dr. Welker has answered Dr. Cline's question. We add some skimmed lactic acid milk to all of our breast milk by the third or fourth week, and gradually replace the skimmed lactic acid milk with whole skimmed milk.

In artificial feeding the milk of choice with me is either cultured liquid or dry lactic acid milk or chymogen milk. Others will prefer evaporated milk and some have found condensed milk valuable in their hands. Personally I have not used it to any great extent.

I just want to say one or two things more that I thought should come out in the discussion.

We do not have a lot of syphilis. When you have 118 cases out of 1,623, which is a little more than seven per cent., that is not a whole lot in a city like Chicago. It is surprising to me how few. I was under the impression, before I became interested in premature infants, that half of them would be found to be syphilitic.

My theme is that with very simple equipment any obstetrical ward can take care of small prematurely born infants.

I do not like to say that our figures are better than those in Boston, but if you read our figures published before Boston's and then those from Boston, you will see they are equally good.

It is a question of breast milk and nursing care and the points made on the nursing question are, of course, of paramount importance.

Since we have been "laying off" the ears we have not had a single mastoid. Our residents used to think every time an ear looked pink they had to stick a hole in it. As a consequence, we had bad ears, mastoids, and brain abscesses. They have almost gone out of fashion in our premature infant station.

One other thing that pertains to the spinal puncture. I have told you that 156 out of 368 autopsies showed intracranial hemorrhage. Further, 118 of our graduates were diagnosed as having intracranial hemorrhage. Dr. Glaser who made a very careful study of spinal fluids in our station found that microscopic blood was physiological in the spinal fluid

of many small infants, therefore this alone is not sufficient evidence for a diagnosis of intracranial hemorrhage.

When we do spinal punctures we do them with a 27 caliber needle, which is the smallest the nurse uses in her ward. We file off the point, making it blunt, put the infant in an upright position, and do not try to get more than just a few drops. But I do not think we are doing ten per cent. of the spinal punctures we did eight years back. As a consequence, I think some of these babies diagnosed clinically as brain hemorrhages are alive and doing well today.

So, I would say "lay off" all the operative technic on the premature and handle them with care and judgment.

THE LIGHTER VEIN IN MEDICINE

EDWIN J. KUH, M.D.

CHICAGO

This effusion in anecdotal (I hope no punster will term it anecdotage) form is based entirely on personal experiences culled from autobiographic notes, which may or may not see the light of day in their completeness. Hence the predominance of the first personal pronoun, which under the circumstances is irrepressible and for which the guilty author asks indulgence.

After twelve years of study abroad I committed the faux pas (!) in 1882 of settling in Chicago (colloquially known as a hick town) instead of in my home town, New York. The reasons were twofold: there was a tempting prospect for a rapidly successful career in general practice (in which I was not disappointed) and secondly musical programs forwarded to me contained the information that Theodore Thomas included Wagner compositions in his concerts. After 1876, in my youth, I had accumulated the piano scores of the Nibelungen and studied them assiduously. We lived in Bayreuth at the time, where I attended the Gymnasium. Anton Seidl was my instructor in music and during my lessons at his home there would frequently be a rap at the door and Richard Wagner entered to confer with him.

A kindly providence has endowed me with a dual nature: an equal devotion to the sciences and the arts, so that I am never lonesome when alone. Familiarity with six languages has contributed an additional thrill in the perusal of classics in the original.

Shortly after my arrival in Chicago the pro-

fessor of physiology at one of the colleges retired and recommended me as his successor. I introduced myself to the dean of the faculty, who inquired into my antecedents. When I stated that I was a graduate of Heidelberg, he shook his head and said, "Nothing doing. Heidelberg is known as a hot-bed of free-thinking (!) and our college is a Methodist institution." I promptly bowed myself out, smiling outwardly and cursing inwardly.

The science and art of medicine have been sacred to me from childhood. Dr. A. Jacobi, "the Nestor of American Pediatrics," our family physician in New York, instilled the love and reverence for my profession into my soul from my earliest boyhood. He called me his bookworm. My profession is to me a vocation. It embodies knowledge, intense application, beneficence in the relief of suffering, honesty of purpose and recognition of one's own limitations. A retired physician once reproached me for my "unscrupulous honesty."

Fortunately not all of medical life is serious, which consideration leads me into "The Lighter Vein."

One late afternoon when I was relaxing on my office couch after a day's heavy work, there was a knock on the door and a man walked in trembling violently. "I am on the verge of delirium tremens," he mumbled, "won't you give me the price of a night's lodging?" As I handed him a coin, I asked why he didn't stop drinking. The question was silly, but it appealed to him. His answer was: "Well, you see, Doc, I am so good-natured that I can't refuse myself anything."

A driver of a brewery wagon was an excessive beer drinker and suffered from gastric irritation. He was advised to practise abstinence and promised to do so. When he returned with disappointment written on his face, he was asked whether he had followed directions. "Practically," he answered, "I cut it down to twenty glasses a day."

A patient who absented himself for several months was met on the street. "You look fine," I suggested. "Yes," he answered, "ever since I quit treating with you I gained fifteen pounds." This was said solemnly and not really intended as a dig.

In taking the history of an asthmatic woman I asked whether she raised much phlegm from

the chest. Pointing to her throat, she answered in her Yiddish jargon: "No, all my mucus comes from de troit."

Another asthmatic casually stated that he could stand the humidity all right, but that it was the dampness that killed him.

One afternoon a breathless female, primed from crown to toe, sailed into the office. "My name is Daisy Dandruff (the name is fictitious). I am a massoor, may I leave you my card?" I ventured to suggest that massoor was the male of the species, and was in reality a masseur and that she was a masseuse. I added that people were travelling abroad considerably, were picking up snatches of foreign languages, and that the better class might resent her mispronunciation. She darted a glance of dislike in my direction. The conversation then drifted into other channels. As she arose to depart she held out her hand in conciliation and said: "Thank you for the correction, doctor, and if you ever need a massoor don't forget to call me."

A boy with a stubborn throat trouble made frequent calls at my office for treatment. "You are using so much of my medicine," I twitted, "that it keeps me poor." "Us too," he countered.

Following a stroke of paralysis, a patient developed rare brain symptoms. A consultation was held with one of our prominent neurologists, from whom I expected to get quite a store of subtle information on cerebral malfunction. "Show me your tongue," he said to the woman. "Not coa-ted, but slimy," he drawled. And that was all I could get out of him.

True emergencies are always willingly responded to by me at any hour, but when a woman under a strict dietary regime called me out at 2 A. M. because of distress following the eating of raw carrots at midnight, I resented the disturbance of my rest. "You didn't tell me not to eat raw carrots at midnight," was her defense. To a certain extent she was right. I had also failed to warn her against munching cobble stones before breakfast.

Under the stress of severe activity a doctor is occasionally too critical: a woman before leaving my office habitually lingered before the wall mirror admiring herself and delaying waiting patients. I suggested that I could remove the looking glass if it annoyed her. She evidently

didn't appreciate the Christian spirit concealed in my proposal and went elsewhere for advice.

A German laborer once left a summons in writing for me to call at his house. He worded it thus:

Johann Schmidt
50 . . Justine St.
obstes

The last word has been a puzzler to people not familiar with the German pronunciation of English. In order to relieve further suspense on their part, I shall solve the riddle by explaining that he meant upstairs.

My two sons held my profession in great reverence. During office hours at home they would loiter close to the door of the consulting room in the hope of getting a thrill. Both wanted to be doctors, but circumstances changed their careers. My younger son on one occasion submitted to a throat treatment. He then looked at me expectantly and asked: "Papa, am I feeling better?" This same boy once expressed his interpretation of a physician's activities by making the statement that Papa went out to make patients.

One hot summer night (Chicago, "the ideal summer resort," has plenty of them), I was called hurriedly and found the dropsical patient gasping for breath and densely surrounded by sympathetic relatives and neighbors, whose crowding added to her distress. I was not in the best of humor, and with a commanding gesture said: "Everybody get out of here." Leading the procession of departing sympathizers was an old Israelite with a long pointed beard, who seemed frightened at my exhibition of temper and ran away hastily with head thrown back and beard pointing vertically upward. He was a comical sight even under those trying circumstances. The next day I inquired who the fugitive was. "That was the other doctor," they told me. I looked him up, of course, and made the proper explanations.

Two Hungarian physicians in this city were unfriendly rivals. A patient of one of them insisted on having the other in consultation. The consultant strained hard to make an impression on the family by spouting his learning. The attending man resented his loquacity by pointing an accusing finger at him and saying: "Sie schmusen mir zu viel" (You are jabbering too much to suit me).

We have a surgeon in Chicago whose awkwardness and untidiness in his work have always made me wonder how anybody could employ him. One of his patients afflicted with a stricture of the urethra came to me for treatment with this raw story: Dr. X., after sterilizing a metal sound in boiling water, forgot to cool the instrument before introducing it. His victim jumped off the table with a howl of agony. The doctor, with rare presence of mind, tried to calm him by promising not to charge him for that treatment.

What I confess to be a mean trick on my part is to say with a gloomy voice to patients with a sense of humor, that I had bad luck in my practice lately, and then hasten to relieve their anxiety by stating that I had had so many sudden recoveries.

My interest in the esthetic once culminated in an embarrassment. The living room of a house where I called professionally was furnished in exceptionally good taste and on the walls hung genuine works of art. I didn't realize how much absorbed I was in their contemplation, until a member of the family interrupted me and asked, "Doctor, won't you also take a look at the patient?"

My first obstetrical case was a thriller. The prospective young parents were referred to me by Dr. Arpad Gerster of New York. They lived many miles from my residence on the west side of the city. It was the most protracted labor I ever witnessed. The sympathetic husband sat at the bedside straining with the parturient wife, as though he himself were getting the baby. At last the infant arrived, but the labor pains continued unabated. Upon investigation I found that there was a twin, requiring a podalic version. I was so exhausted by the all-night vigil that I called in a specialist. He extracted the second child and in so doing fractured one of her clavicles. But everything came out all right in the end: mother, babies and I made an uneventful recovery. The name of my consultant was Merriman, thereby adding insult to injury.

A woman who came to me for hay fever and asthma treatment behaved so awkwardly that I lost my temper, and we agreed to disagree. Early one Sunday morning a year or two after, I was summoned to the telephone to make an appointment with a new patient. After her arrival I recognized in her the old sinner. She had come

under an assumed name, but saw that I recognized her. The embarrassment written over her deceptive features was so comical that I burst into laughter. We kissed (this is not to be taken literally) and made up, and from that time on there was complete harmony between us. She yielded to my disciplinary guidance and is now in perfect health.

One of my most conscientious patients occasionally appeared after a prolonged absence with a look of depression on his face. "Doctor," he would say, "I owe you an apology. I have been so well all these months that I could find no excuse for consulting you. But as long as I'm here you might as well look me over." He has a son who is also afflicted with chronic good health and who always seems happy to discover a slight blemish, from a pimple up, with which to present himself.

By way of contrast, I shall now describe one of the most pathetic experiences of my career. At the request of an intelligent druggist whose asthmatic wife I had relieved permanently of her intense suffering, a woman had me called to her bedside. She was emaciated (weighing eighty odd pounds) and under the care of a nurse. There was the question of a complication with tuberculosis. Laboratory tests excluded that and other diseases. We then agreed that she was to be brought into my office for an initial trial of my method. To my surprise several appointments were broken. At last the nurse appeared with this explanation:

"Doctor," she said, "I have a confession to make. Mrs. S. was so impressed by your examination and general demeanor of expertness, that she was afraid you might be successful with her. She is a confirmed morphinist and feared that you might withdraw the solace of hypodermics. She prefers her asthma plus morphine to health without the narcotic."

"If you wish to grasp infinity, study human stupidity" is a statement credited to Renan. In visiting a patient I found that he had a febrile disease and instructed his wife to keep a record of his temperature. She invariably found it normal. I asked her to take it in my presence and found that she inserted the wrong end of the thermometer into his mouth.

When typhoid fever was a prevalent disease the nurse was found to have omitted a record of the

patient's temperature from one day to the next. When asked the reason, she said: "The patient's temperature went so high last night that it busted the thermometer."

A woman once asked whether doctors charged reduced rates for children.

Men who claim that they don't know how to take an enema are invariably bachelors of a shy disposition.

But even physicians can be maladroit. The following incident will serve as an illustration. A new patient came to consult a doctor. After taking her name, address and telephone number, he asked: "Married or single?"

"Married," was the answer.

Doctor: "Any children?"

Answer: "No."

Doctor: "How long married?"

Answer: "Three months."

A psychologist may be able to understand better than I why women prominent in public life and impressed with their importance, resent the taking of a thorough history of their case. They seem to interpret it as a prying into their intimate lives, and make it a practice to dodge my purely professional questions.

We have in Chicago a specialist who is famous for his skill and notorious for his bluntness. A woman who had risen through marriage from a lowly rank into affluence, laziness and adiposity, went to consult him, because he is the fashion. After looking her over carefully, he summed up his diagnosis in these words: "The trouble with you is that you are too damned fat." She left him in high dudgeon and drifted to me, relating her experience. That put me on my guard, of course, I agreed with the other doctor, but expressed myself more delicately by saying: "Madame, you are over-weight and must take exercise and go on a diet." She thanked me for my courtesy and went about town proclaiming me a perfect gentleman.

Not so long ago I was denounced by an occasional patient as an old fogey, because I don't prescribe sauerkraut juice.

At the time that Sinclair Lewis was planning "Arrowsmith" we happened to meet socially, and unconventionally, not to say rudely, isolated ourselves in a corner of the room away from other guests. He "pumped" me for possible contributory medical factors. In the course of our con-

versation, I congratulated him on his deep insight into the soul of the physician as manifested in Main Street. No writers of fiction, I remarked, except George Eliot, could rival him in that regard. I could read in his face that the comparison with a mid-Victorian did not strike him as complimentary. "You have made yourself guilty of only one slip," I continued. "According to your graphic description of Bea's death, she died of a typhoid perforation and Kennicott should have performed a laparotomy as a last resort." "Did she really die of a perforation?" he asked in some bewilderment. "I didn't know it."

One more experience, which is too amusing for omission: When paraldehyde was a novelty as a hypnotic, Dr. Martin Matter and I walked into a drug store employing a German clerk and asked in his native language for Paraldehyde (pronounce the last syllable "hüd"). He told us to drop in the next day and he would take care of our order. When we arrived he handed us a couple of old hats: e' Paar alte Hüt'.

30 N. Michigan Ave.

CYSTIC DISEASE OF THE LUNGS

(With Report of Eight Cases)

EMMET F. PEARSON, M. D.

SPRINGFIELD, ILL.

Cystic disease of the lung has aroused considerable interest during the past decade. This interest has come in the wake of modern diagnostic methods and more bold surgical approach to intrathoracic pathology. The clinician must now be constantly on guard in order to recognize cysts and other non-tuberculous diseases of the lungs, which frequently lend themselves to effective therapeutic methods.

Non-parasitic cystic disease of the lungs with which we are here concerned includes localized distentions of portions of the tracheobronchial tree, the cyst wall usually retaining the histologic characteristics of the portion from which it developed, and other discrete sacs, which are thought to originate from the interstitial tissue of the lung. Cystic disease in its broadest meaning includes the rare dermoid cysts which develop from aberrant rests of primitive tissue and

parasitic cysts such as the hydatid cysts which develop from the ovum of the dog tapeworm, *Taenia echinococcus*. The parasitic cysts are seldom seen in this country, but are frequently reported in countries where the dog is used in herding animals, as in Iceland, Australia and the Argentine.

True lung cysts vary greatly anatomically and in the clinical syndrome produced. The most characteristic histologic feature of the majority of cysts is that they are lined with epithelium, which may or may not be ciliated, and the wall may contain cartilage, mucous glands, muscle and elastic tissue. The walls of a few cysts, which do not contain any of the above histologic features, are thought to originate from faulty lymph anlage and, therefore, are lymphangiectatic spaces. The cyst wall may be thin and elastic, allowing rapid distension with air and producing "balloon cysts" which are seen only in infants. Other solitary cysts or clusters of cysts have more or less rigid walls which do not permit changes in size. These occur in any part of the lung and may or may not communicate with bronchi. They may contain gas or fluid which becomes purulent when they are infected. Multiple cystic dilatations in one or several lobes of the lungs produce a condition which simulates acquired bronchiectasis. The German literature contains several case reports of diffuse cystic change throughout the lung, a condition called "honeycomb lung."

Cystic disease has been extensively studied pathologically. Müller¹ in an admirable review of the pathologic studies concluded that a sharp distinction between congenital bronchiectasis, lung cysts, "honeycomb lung," small cystic degeneration of the lung, congenital vesicular changes, fetal atelectasis, bronchial and lung adenoma, and congenital pulmonary lymphangiectasis is not possible.

Various theories^{2,3,4,5} regarding the etiology of cysts have been advanced, but probably no theory explains all the cases. The majority of cysts are undoubtedly congenital in origin, but some develop after birth in defective areas of the lung or after some obstruction causes a distention of a portion of the bronchial tree distal to the obstruction. The clinical significance of a cyst once formed does not depend on its method of formation.

Meyer,⁶ in Germany, published the first report of a case of lung cyst in 1858. Koontz⁷ reviewed the literature in 1925 and found 108 cases of so-called congenital cystic disease. I have found and read in the available literature the reports of 64 cases since that time, 20 of which have been reported by American authors. I have made a resumé of these cases and will use them to demonstrate various features of the disease along with the discussion of the cases which I am to report. The list of 172 cases that have been reported as cystic disease could be increased by including cases reported as bronchiectasis, localized emphysema and pneumothorax which, from description, are identical with other cases reported as cysts.

While serving as interne at the Barnes Hospital and during my service as Resident on the Medical and Surgical Chest Service of that hospital it was my good fortune to observe with Drs. E. A. Graham and J. J. Singer eight cases which may be classified as having true cystic disease. These patients have shown many of the bizarre clinical effects that may result from cystic disease and certain unique features of diagnosis and treatment were employed.

Case 1. *Rupture of a Balloon Cyst with Spontaneous Pneumothorax in an Infant.* (See Fig. 1.)

N. D. Male infant, age eighteen months when seen in the Chest Service in August, 1931. The child was normal at birth and developed normally during the first year. Fourteen weeks before admission the child began having some difficulty in breathing and there was an audible wheeze; this was thought to be asthma. He continued to have recurrent attacks of extreme dyspnea and cyanosis during the next few weeks. At the time of admission to the chest service the dyspnea was continuous. The physical signs revealed the heart displaced into the right side of the chest compressing the right lung. The left side of the chest was expanded, percussion over this side produced a hyperresonant note and breath sounds were absent. X-ray and fluoroscopic examinations revealed huge cystic areas almost filling the left side of the chest and a pneumothorax pocket above the left leaf of the diaphragm. A needle was inserted through the chest wall into one of the cysts and nine hundred cubic centimeters of air were aspirated. Prompt and dramatic relief of the patient from the dyspnea and distress resulted from the aspiration. Lipiodol was injected through the needle directly into the lumen of the cyst. The accompanying film was taken after the lipiodol had been injected and the child was rolled over a few times in order to spread a coating of the iodized oil throughout the cysts. The child was lying on his right side when the film was taken. It was not possible to ascertain whether the cystic areas on

the right side originated on that side or herniated through the mediastinum. Frequent, usually daily, aspirations of air were continued as symptoms demanded during the following four weeks. Some serous fluid accumulated and after this was aspirated the attacks of dyspnea subsided, the mediastinum returned to the midline and the cysts gradually decreased in size until no signs of them could be detected. A recent x-ray film reveals nothing that could be called abnormal. It is our opinion that after the development of the serous fluid the pleura became adherent to the chest wall which prevented repeated development of spontaneous pneumothorax and a fibrosing process caused occlusion of the orifice through which the cysts communicated with a bronchus. The air in the cysts then was absorbed and the cysts obliterated.

Case 2. *Rupture of Cyst Causing Pneumothorax in an Infant with Sarcoma of the Lung.* (See Fig. 2.)

S. F. A twenty-eight months old girl, when first admitted to the St. Louis Children's Hospital in January, 1933. She had a cough, slight fever and dyspnea, which was out of proportion to the rest of the clinical picture. There was notable retraction of the costal margins on inspiration. Physical examination of the chest revealed nothing pathological, except suppression of the breath sounds over the mid portion of the right lung posteriorly. An x-ray film taken at that time showed some general haziness of both lung fields and an opacity below and lateral to the right hilus region. She recovered quite completely from this respiratory infection, which was called influenza, but soon began having a slight non-productive cough. In the two weeks preceding her second admission, which was May 24, 1933, she had been dyspneic but not cyanotic. The dyspnea was not paroxysmal. On admission, she was afebrile but had some cough and there was a mild rhinopharyngitis. There was notable fullness of the

right hemithorax and the percussion note was hyperresonant over this side. The heart and mediastinum were displaced into the left side. Breath sounds were absent throughout the right chest, except over an area near the sternum anteriorly where there was amphoric breathing. An x-ray film showed a huge pneumothorax pocket compressing the right lung and crowding the heart into the left chest. Above the inner third of the right leaf of the diaphragm, there were several rounded rarefied areas surrounded by zones of increased density and averaging two centimeters in diameter. The lowest space contained a fluid level. Lipiodol introduced through a needle which was inserted through the space between the cricoid and thyroid cartilages failed to enter any of the cyst-like areas. A needle inserted into the right pleural space showed the pressure to be positive six centimeters of water. Air seemed to refill the pleural space as fast as it was withdrawn. Tuberculin test was negative and other routine laboratory tests were also negative.

The patient gradually became worse during the next months and died in September, 1933, nine months after she was first seen. During the intervening months, a mass had grown to fill the right side of the chest. At necropsy this mass was found to be a huge sarcomatous tumor. The probable course of events was that a slow growing sarcomatous tumor largely occluded a small bronchus; small cysts were formed behind the obstruction; further distention of one of the cysts caused it to rupture and a pneumothorax was produced. The tumor grew to fill the entire right hemithorax, compressing the lung tissue and the cysts beyond recognition.

Case 3. *Cysts in an Infant with Complicating Pulmonary Infections.* (See Fig. 3.)

J. H. A one year old male infant, who was perfectly well until he suffered an attack of bronchopneumonia five months before admission. He continued to



Fig. 1. "Balloon cyst" in an infant, age 18 months. The wall of the cyst has been outlined with lipiodol.



2. Cluster of cysts in an infant, age 28 months. One of the cysts has ruptured, causing a pneumothorax, and another contains a fluid level.

have a cough and sputum, with some fever, until admission to the St. Louis Children's Hospital on May 19, 1931. Physical examination revealed a chronically ill infant with marked clubbing of the fingers. There were rales of various types throughout both sides of the chest. An x-ray film showed a large air pocket in the upper left chest. In differentiating the etiology of the air pocket, tuberculous and pyogenic cavities were excluded on account of the size of the cavity, lack of the usual associated changes seen in the x-ray, and the lack of the clinical syndrome of either disease. Solitary emphysematous blebs of this size do not occur in infants. An empyema cavity containing air would almost certainly contain a fluid level. The clinical picture, history, physical findings and x-ray pointed to a congenital cyst with associated acquired bronchiectasis. Lipiodol filling was not done on account of a complicating bilateral mastoiditis and the general poor condition of the patient. A bilateral mastoidectomy was performed one month after admission and the child died the following day. At necropsy a large smooth lined cyst, occupying the greater part of the upper left lobe, the wall of which was somewhat trabeculated, and no open bronchial communication was found. There was in addition extensive bilateral bronchiectasis with superimposed inflammatory changes.

Case 4. *Multiple Unilateral Infected Cysts Simulating Bronchiectasis.* (See Fig. 4.)

J. S. A fourteen year old white girl, who began having a chronic cough at the age of three months without history of foreign body, aspiration or acute respiratory infection. This cough had continued throughout her life without periods of acute illness and without fever.

There was a slight amount of sputum for many years but it increased in amount and became moderately foul within the six months before admission and during this time there was considerable deterioration in her general health. She had slight hemoptysis and some night sweats shortly before admission. Physical examination revealed a very poorly nourished pallid girl with an offensive breath and moderate clubbing of the fingers. The percussion note was dull over most of the left chest and was hyperresonant over the right. The breath sounds were tubular in character over the lower portion of the left chest and whispered voice was increased. There were rales of many kinds heard over the entire left chest and some over the right. There was a to and fro friction rub heard at the left base at one time. Expansion of the left chest was greatly limited. The heart was apparently normal but the blood pressure was only 90/60. There was also a pansinusitis and faucial and lingual tonsillitis. The sputum was foul and it settled with a frothy float. No tubercle bacilli nor spirochaetes were found. X-ray film revealed enormous cyst-like cavities throughout the left lung in each of which a fluid level can be seen. Postural and bronchoscopic drainage was started but after a few weeks she went to her home, which was out of the city, and apparently developed an acute respiratory infection from which she died.

Case 5. *Large Cyst with Fluid, Infected with B. Influenzae.* (See Fig. 5.)

F. P. An eighteen year old white girl, who was first seen in the Chest Service in August, 1929. Her illness began two years before with a cough that began insidiously without history of preceding respiratory infection or foreign body aspiration. Sputum increased in quantity rapidly after that time and became foul. She had occasional periods of acute illnesses with chills, fever and sweats. Physical examination revealed a well

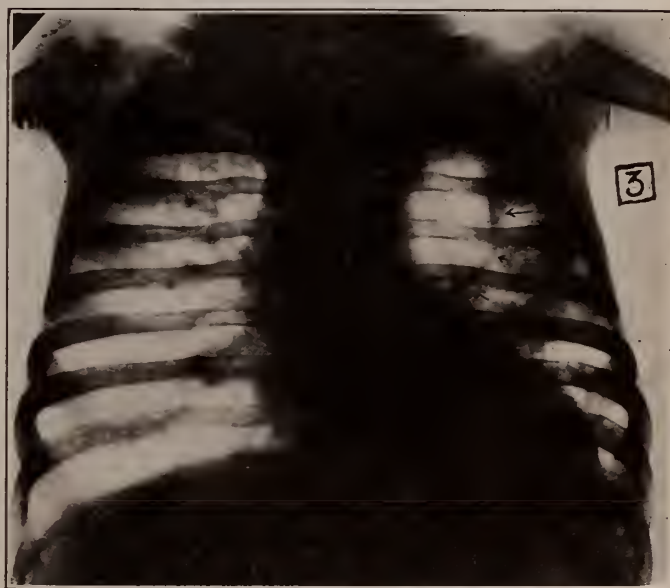


Fig. 3. Solitary upper lobe cyst in an infant, age 12 months. There is an associated diffuse pulmonary infection.

developed and nourished girl, apparently not acutely ill. Expansion was limited over the left chest and the breath sounds and whispered voice were of very high pitched quality over the lower left chest. Numerous rales were heard in both lower chests. There was no clubbing of fingers. Laboratory work revealed no very significant findings. The sputum was greenish yellow and slightly malodorous. No tubercle bacilli or spirochetes were found after many examinations and guinea pig inoculation. Culture of pus obtained by aspiration through the chest wall gave a pure growth of the Pfeiffer influenza bacillus. Lipiodol given by aspiration method did not enter any of the cavities, but one cavity was filled with lipiodol at the time of a bronchoscopic examination. The air pressure in one of the main cavities was plus four centimeters of water. Lipi-



Fig. 4. Unilateral multiple infected cysts in a girl, age 14 years. Many of the cysts show fluid levels.

odol injected through the chest wall into one of the cavities was soon coughed up by the patient. She ran a low grade fluctuating temperature. On September 17, 1929, Dr. Everts A. Graham resected a portion of the right ninth rib and found a thickened cyst wall which he did not open at that time. On October 1, the cavity was opened by use of the actual cautery. This drainage stopped the sputum from being coughed up, but she continued to have a draining sinus without fever for three months. On January 1, 1930, Dr. Graham resected two more ribs and made the opening for drainage wider. He performed a phrenicectomy on February 17, 1930. In spite of this treatment, which allowed adequate drainage, the cavities did not decrease in size. In January, 1931, an attempt was made to re-enter the cavity by posterior incision and it was necessary to remove some regenerated bone and to cauterize lung tissue. A severe hemorrhage occurred at this operation which required packing the wound. Five days later

when the packing was removed a severe hemorrhage occurred from which the patient expired in a few minutes. A section of the wall of the cystic cavity showed a definite epithelial lining with flattened cells and inflammatory reaction throughout the wall.

Case 6. *Multilocular Cyst Infected with B. Influenzae.*

A. M. A twenty-five year old garage mechanic, was first seen in the chest service in 1931. At that time he had cough productive of foul sputum which had been present for seven years. He had pneumonia as a child, but this cleared up after three or four weeks. His illness began in September, 1925, with chills, fever and severe pleurisy pain on the left side. A productive cough followed but he returned to work in six weeks. Cough continued without purulent sputum until August, 1928, at which time he suddenly coughed up a pint and a half of thick malodorous pus. Two years later he again coughed up a quantity of pus. During the year before admission, he practiced postural drainage with success. Three hundred cubic centimeters of pus were obtained by postural change at time of first admission. He was well nourished and developed. There was no clubbing of the fingers, nor any respiratory distress. Over the left base there was dullness, absence of breath sounds and a few rales. No tubercle bacilli or spirochetes were seen in many examinations of the sputum. The roentgenologic appearance of this cyst was almost identical with that of Case 5. Pus obtained by aspiration through the chest wall and the sputum both gave pure cultures of Pfeiffer influenza bacillus. On April 8, 1931, Dr. Evarts Graham resected a portion of the eighth rib overlying the cavity and inserted a tube for drainage. A thoracoscope was introduced through the incised wound and a multiloculated cavity with glistening lining and bronchial fistulae was seen. The sinus continued to drain during the next five months and Dr. Graham performed a left phrenicectomy on October 5, 1931, after which the diaphragm was immobile but its height was not raised appreciably. On November 6, 1931, Dr. Graham removed the five ribs above the sinus from the transverse process to the posterior axillary line in an effort to collapse the cavity. Unfortunately the walls of the cavity were so rigid that they failed to collapse at all and pushed the mediastinum towards the opposite side before them. The patient still has a sinus from which there is only very slight drainage and a bronchial fistula communicates with the cyst. He refuses to allow an extirpation of the cysts.

Case 7. *Emphysema with Unilateral Cyst-like Arcus in Upper Lobe.*

R. G. A forty-four year old negro, who had mild recurrent attacks of coughing and wheezing, which he called asthma, for eighteen years before he was admitted to Barnes Hospital in November, 1931. He never required any specific treatment for his respiratory ailment. His complaints at the time of admission were rapid loss of weight and abdominal distress. Examinations revealed a markedly emphysematous chest with dullness at the right apex and hyperresonance elsewhere. The breath sounds were amphoric beneath the

right clavicle and there were some postcough rales. X-ray revealed a cluster of cyst-like cavities at the right apex without parenchymal infiltration. These filled readily with lipiodol and seemed to be in the mid-portion of the lung. The position of the cysts and the ready filling with lipiodol more or less excluded the possibility that these were emphysematous blebs. His sputum was very scanty but numerous searches for tubercle bacilli were of no avail. He had no fever and had never had symptoms of tuberculosis. Some time later a tumor was felt in the right lower quadrant which, on exploration, was found to be an inoperable carcinoma of the cecum. He left the hospital and at the time of his death, autopsy was not possible.

Case 8. Cystic Disease Associated with Bronchiectases.

E. T. A thirty-eight year old man, who was free from respiratory symptoms until he was struck by a street car eighteen years previously. He was in bed for seven months thereafter, during which time he had cough and much sputum. He then was sufficiently well to resume work which he continued for one year. He then began having frequent pulmonary hemorrhages which lasted over a period of two years. During the ten years before admission to Barnes Hospital, he had repeated attacks of acute pulmonary infection and a chronic cough with some purulent material which was not particularly foul. Physical examination revealed generally diminished breathing over the right chest and

many moist rales. He also had bilateral maxillary sinusitis. Lipiodol injection revealed huge multiple cyst-like cavities about 5 centimeters in diameter in the upper portion of the right lung. In addition to the large cystic cavities, there were cylindrical sacculations at the base of the right lung, which had the characteristics of acquired bronchiectasis. The history and the morphological characteristics, though far from conclusive, suggest that the cystic changes in the upper portion of the lung were congenital and that an acquired bronchiectasis had secondarily been added to complicate the picture.

Discussion. From a consideration of the literature and study of cases, it appears that a large proportion of the cysts may remain asymptomatic throughout the life of the individual, and that the presence of cysts is usually called to the attention of clinicians only when some accident occurs, such as rupture or infection.

In spite of the pathological confusion and unsettled theories of formation, the clinical features of lung cysts, though varied, fall roughly into rather definite groups. The variations in microscopic pathology have as yet no clinical correlations, but there are very definite syndromes which accompany certain gross pathological

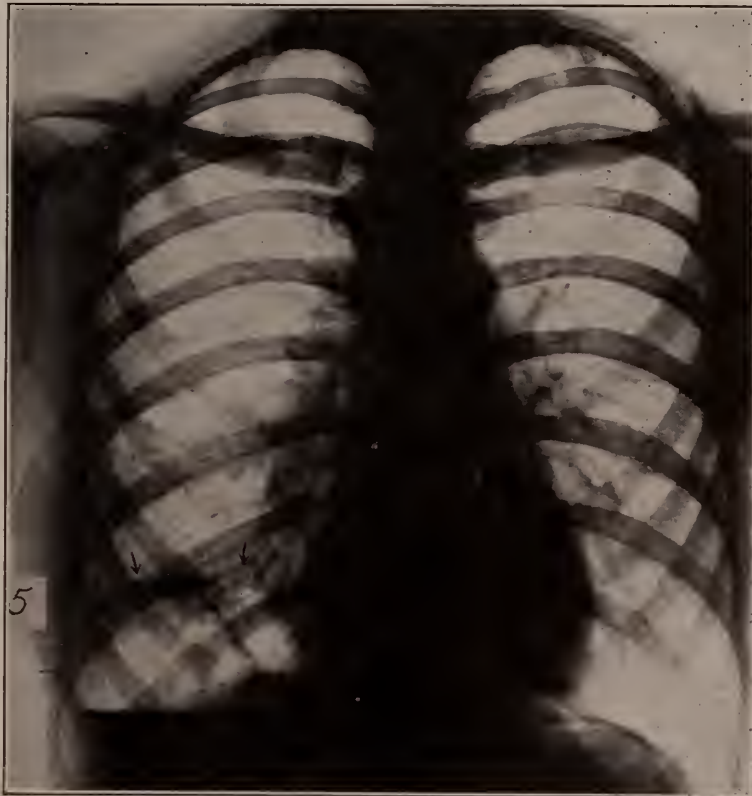


Fig. 5. Solitary cyst at base of right lung in a girl, age 18 years. The cyst has a thick rigid wall and shows a fluid level.

changes and which are often determined by mechanical and accidental factors. The strength of the wall, the presence or absence of a bronchial communication, the presence or absence of ball-valve mechanism at the bronchial orifice, the anatomical relation of the cyst to other organs, the presence or absence of fluid in the cyst, and the presence or absence of infection determine the respective clinical picture. A satisfactory all-inclusive clinical classification has not as yet been made and this cannot be done until a much larger number of cases has been clinically studied.

Cysts in infants necessarily have thin walls, regardless of their origin. Elastic tissue is said not to appear in the lung until about the second month of life. If these cysts contain air they must communicate with a bronchus either permanently or intermittently; otherwise, air would be absorbed and the cyst would collapse. If the ball-valve mechanism occurs at the point of bronchial communication, air will be drawn into the cyst on inspiration and trapped during expiration. There is always very positive pressure in this type of cyst. The degree to which the cyst will expand depends on the strength of the wall and if it expands to fill one hemithorax, its effect in causing compression on the other lung depends on the mobility of the mediastinum. It is thought that if a rapidly expanding cyst originates in the parenchyma of the lung it is likely to cause rupture of the lung tissue and produce a pneumothorax.

The cyst wall itself may not be sufficiently strong to stand rapid inflation and may rupture. Many of the cases which have had a rapidly expanding cyst or pneumothorax have died after one or more attacks of great respiratory distress. Vollmer⁸ aspirated air from his patient, who recovered. Our first case survived many attacks and was aspirated many times. He is now clinically well.

If no bronchial communication is present, or if the communication remains patent, there is no opportunity for the production of a rapidly expanding cyst because the air cannot be trapped. Probably, if this accident does not occur in early infancy, the wall of the cyst becomes sufficiently strong to resist stretching. Our first case no longer has desperate attacks of dyspnea like those that threatened his life during his second year. Debre and Blinder⁹ reported the case of a boy

of seventeen with a voluminous air cyst, who had desperate attacks of dyspnea in early childhood, but in spite of persistent spontaneous pneumothorax is now clinically well. It seems quite possible that a cyst with a rigid wall may remain inflated with gas over a great period of time in the absence of a free communication with a bronchus. The gas within the cyst probably comes into equilibrium with the blood gases. Although there is some tendency to obliterate the air space by absorption of a part of the gas, the negative pressure created is not sufficient to collapse the wall. Certainly, pneumothorax pockets may persist in the chest for months or years without decreasing in size or filling with fluid. Several air cysts have been found to have no demonstrable bronchial communication at autopsy. Our third case was such a type. This condition will probably not be found in infants because the cyst wall is too flexible.

Infants and young children with cystic disease are apparently easily susceptible to associated pulmonary infection. Many of the reported cases have died of pneumonitis or bronchopneumonia. Our third case was first seen by a physician on account of pneumonia.

Infection in certain types of cysts is almost inevitable and is possibly due to inadequate drainage of cysts which communicate with bronchi. It may be of low grade with minimal symptoms or be very severe. It will be noted that in two of our cases, pure cultures of the Pfeiffer influenza bacillus were obtained. This finding has also been made in patients of Siems,¹⁰ Clairmont,¹¹ Eloesser,² and Sauerbruch.¹² Marcercelli's¹³ case died at eighty without infection in the huge cyst which was present and Pollock and Marvin,¹⁴ Siems,¹⁰ Eloesser² and Møller¹⁵ have seen patients over forty with cysts that apparently were not infected. There was apparently no infection in the cysts of our eighth case, a man of forty-four.

Symptoms may be due simply to pressure of the cyst. Chest pain was the first symptom noted in several of the reported cases. Cough, apparently due to simple pressure on a bronchus, is the only symptom in some cases. A cyst has been known to occlude a main bronchus by pressure. A cyst may cause repeated bleeding, which, along with the cough and pulmonary cavities,

constitutes the usual syndrome of chronic fibroid tuberculosis.

Diagnosis. The history and physical examination of the individual case seldom lend important aid in the diagnosis of cystic disease without assistance from other methods. Although x-ray offers the most reliable information in most cases, it has definite limitations. Møller¹⁵ describes the typical picture of multiple cysts as follows: "There is a peculiar disposition of the cavities in relation to one another, irregularly arranged, each one sharply delimited and separated from the others by a fine network of consolidation without any infiltration or pulmonary tissue between." The difference between tuberculous cavities, cavities caused by pyogenic infection and true cysts is determined chiefly by the thinness of the walls of the latter, which may be impressed by any solid structure with which they come in contact and by each other, and by the absence of associated changes usually seen in the former conditions.

Frequently the instillation of lipiodol by the supraglottal route, or by direct injection of the oil into a cyst through the chest wall previous to taking the x-ray film, will show the outline, extent, and communications of cysts not otherwise discernable. The cystic cavities may at times be definitely located, the contents examined, and the relationships determined by bronchoscopic examination. Direct operative exploration of a suspected cyst is the one absolute method of diagnosis. When a cyst is explored a biopsy of the wall should be taken.

Many of the cases, reported as congenital cystic disease, are probably not unlike those recorded by other authors as congenital or acquired bronchiectasis. When multiple cysts become infected, they show the complete clinical picture usually seen in bronchiectasis. The differential points between cysts and certain forms of bronchiectasis are not well defined but the former are usually larger, more nearly spherical and more discrete. History of onset of symptoms early in life and absence of a definite etiologic factor favors the diagnosis of cyst. Demonstrable bronchial communications of a true cyst are sometimes absent but are always easily demonstrable in bronchiectasis.

Single or multicocular cysts which become infected simulate acute or chronic empyema or

lung abscess. Operations for supposed empyema have been responsible for the diagnosis in several cases of lung cysts. Krampf,¹⁶ Neuhoft,¹⁷ Eloesser² and Graham (two of our cases) have operated on cysts with previous diagnosis of empyema. The finding of a well defined wall about the cavity with epithelial lining and other characteristics of some portion of the bronchial tree confirms the diagnosis of cyst.

Solitary cysts containing fluid are a most difficult diagnostic problem. If there is air above the fluid, a fluid level is obtained and the picture may be almost identical with that of a lung abscess, tuberculous cavity, or empyema with bronchial fistula. Recourse to history of the case, process of exclusion and operative exploration are the only means of differentiating cysts from such conditions as the above and from many other tumor like shadows seen in the x-ray caused by retrosternal struma, diverticulum of the esophagus, gravitation abscess from caries of a rib or gland, aortic aneurysm, benign and malignant tumors, and lastly, false cysts—cystic degeneration in neoplastic tissue as in dermoid cysts and malignant growths and cystic degeneration following inflammatory reactions.

A huge air cyst can hardly be differentiated from pneumothorax without the x-ray, although one may suspect the condition from a history of repeated attacks or respiratory distress and cyanosis. The presence of a pneumothorax either spontaneous or induced (see Pollack's case¹⁴) may allow the wall of cyst to be shown in an x-ray film. The characteristic hilus stump, which is always present with complete pneumothorax, is not seen in a voluminous cyst.

Prognosis and Treatment. The relatively high mortality in infants and young children with cystic disease is due chiefly to the fact that the reserve of the respiratory mechanism is not great. They cannot compensate for changes in pressure and position caused by large cysts and their reserve is very low when there is an associated pulmonary infection. The outlook is not necessarily bad even in the very young. If fatal accident is prevented by well timed aspiration of air, the air of the cysts may eventually be absorbed and a clinical cure results. Our first case is now apparently clinically well. Vollmer aspirated a cyst and reported a clinical cure. If death does not result at the time of the rupture of a cyst,

the child may live indefinitely with a pneumothorax. Debre and Blinder's⁹ case apparently had a pneumothorax for many years and was not debilitated. There is not sufficient available information from similar cases to prophesy what harm may result from a persistent pneumothorax. If the branch of the bronchus which communicates with the cyst can be stenosed, the portion of the lung containing the cyst will probably collapse and the remainder of the lung will reinflate. In infection occurs in the cyst, the possibility of a permanent cure is greatly diminished.

The problem in multiple cysts which are infected is similar to that of severe bronchiectasis. The conservative measures, namely, postural drainage, vaccine administration, bronchoscopic drainage, etc., have been employed many times without gratifying results. Phrenic exeresis has not been reported to be of value in obliterating cysts. Dr. E. A. Graham performed phrenicectomy on two of our cases. Artificial pneumothorax has been used as a diagnostic measure in order to outline a cyst wall. This procedure will probably not be a valuable therapeutic method because the cysts are displaced by the air but not obliterated. Eloesser² performed a lobectomy, removing a group of infected cysts in a young woman with complete cure. Our fourth and fifth cases died after prolonged debilitating illnesses during which time no treatment was of value. Patients with multiple infected cysts have been reported by Gibson,¹⁸ Eloesser,² Møller¹⁵ and others which have suffered little deterioration in health.

Infected solitary cysts lend themselves to therapy more readily than multiple cysts. Drainage by rib resection has been instituted frequently with great improvement in the patient's general condition but permanent fistulae have always resulted because the cyst is not obliterated. Extirpation of solitary cysts have been reported by Clairmont,¹¹ Melschoir,¹⁹ Krampf,¹⁶ Sauerbruch,¹² Møller,¹⁵ Ehlers²⁰ and Harrington,²¹ with five apparent cures and four deaths directly attributed to the operation. Sauerbruch¹² combined thoracoplasty with extirpation of the cysts in one case. Dr. E. A. Graham has performed a partial thoracoplasty in two of our cases without materially affecting the size of the rigid cysts.

A therapeutic suggestion has been made by Dr. W. E. Adams.²² He believes that if all the cysts

in a given case are in relation to one division of a bronchus, stenosis of this bronchus will cause collapse of the portion of the lung containing the cyst and the air in the cyst should eventually be absorbed. Stenosis of bronchi in man has been done by Adams who applies 35 per cent silver nitrate through a bronchoscope to the bronchial mucosa. Adams has also suggested that silver nitrate could be injected into cysts in an effort to destroy the lining epithelium and give better opportunity for obliteration of the cavity.

Upper respiratory infections are a serious menace to patients with cystic disease. Apparently, in some instances a "vicious circle" is set up so that infected nasal sinuses and cysts each increase the seriousness of the other. Measures should be taken in every case to prevent or, if possible, eradicate all chronic upper respiratory infections.

CONCLUSIONS

Modern diagnostic approach to chest diseases has made possible the recognition of an increasing number of lung cysts in many countries during the past few years and surgical technic is constantly being perfected in order to provide effective therapy. Non-parasitic cysts may simulate in many ways parasitic cysts, bronchiectasis, empyema, lung abscess, emphysema and tuberculosis. These conditions must be kept in mind in the differential diagnosis of the obscure case. Recourse to all available investigative methods may be necessary to arrive at the correct diagnosis. History, physical examination, x-ray films and fluoroscopy after filling the bronchial tree with iodized oil, diagnostic pneumothorax and operative exploration all have limitations but when used judiciously, intrathoracic lesions become more vivid and their size, shape, position, consistency, mobility and attachments may be determined.

Treatment of cysts must be instituted with a knowledge of the physiologic and pathologic background and in many cases eminent success may be obtained.

Eight cases of cystic disease, which have been observed in the chest service of Barnes Hospital in the past five years, have been presented. These cases have been discussed along with a cursory review of the 172 cases that have been reported in the world literature.

It is hoped that sufficient interest in this and

other non-tuberculous diseases will be stimulated so that fewer cases will go unrecognized.
819 Ridgely Building.

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DISCUSSION

Dr. M. Pollak, Peoria: It is not so very long ago that nearly every case of a chronic pulmonary condition was diagnosed as tuberculosis. Since the use of x-ray, we are learning more and more that there are other chronic diseases of the lung besides tuberculosis.

We say today that cancer of the lung is on the increase, but this is so perhaps because we are diagnosing today cancer of the lung more frequently because we are making more frequent and better use of our diagnostic methods.

In every chronic disease of the lungs, naturally pulmonary tuberculosis is the first disease we think of. And it is quite important that an accurate differential diagnosis be made because an accurate diagnosis has quite a definite bearing on our treatment. In making the diagnosis, history, sputum and x-ray examinations are of the greatest importance. In every case of chronic lung disease where a considerable amount of sputum is examined repeatedly and reliably and is found negative for tubercle bacilli, we have every reason and right to question the diagnosis of tuberculosis and other conditions have to be thought of; among them, cystic disease of the lung is one that should be remembered.

We see from Dr. Pearson's excellent paper that, after all, cystic disease of the lung is not so very rare as we have thought it before. If one man can collect in a relatively short time so many cases in a Chest Service, as excellent as that Service might be, it shows that the disease is fairly frequent.

Cystic disease of the lung, as you have seen from Dr. Pearson's paper, has as its most frequent complications spontaneous pneumothorax. We hear every so often of cases of spontaneous pneumothorax which originate on

a non-tuberculous basis. I believe that these are caused either by cystic disease, or by the rupture of an emphysematous bleb. The differential diagnosis of the underlying cause of spontaneous pneumothorax is exceedingly important as far as our treatment is concerned. If the pneumothorax originates on a tuberculous basis, we will try to maintain it and convert the spontaneous into an artificial pneumothorax as a matter of treatment. If it originated from a non-tuberculous lung as a cystic disease, or an emphysematous bleb, we will permit it to become absorbed and the pleural cavity obliterated again.

The differential diagnosis of cystic disease from large emphysematous blebs is not entirely simple—at least to my mind—and much work will have to be done in this regard. I believe that a closer study of the chest radiograms will lead us to a better differential diagnosis.

I want to congratulate Dr. Pearson for his excellent paper. I certainly enjoyed it.

SACROCOXALGIA

JOSEPH E. ALLEGRETTI, M. D.

Clinical Instructor, Rush Medical College, University of Chicago

CHICAGO

Definition. Sacrocoxalgia or sacrocoxitis is an acute or chronic inflammation of the sacroiliac synchondrosis due to a subluxation or arthritis of one or both joints, producing pain of varying intensity in the lower back, and often incapacitating the patient from his occupation. Although the condition is very common and disabling, it is given very little attention in our medical text-books.

Etiology. Trauma is a very important and prominent part of the history in over 90% of patients; this may vary from a slight twisting of the back to a dislocation of the sacroiliac joint. A fall directly on the coccyx or sacral region, heavy weight lifting, or strain from occupation or exercise are all etiological factors. Foci of infection are as important here as in arthritis, neuritis, or myositis of any other part of the body.

Symptomatology. The onset is usually sudden, brought on by some injury confining the patient to bed immediately, but may be gradual, brought on by repeated minor traumas. Pain in the lower back is the outstanding complaint, varying from a dull ache to an intense sharp pain on the slightest movement. The pain is aggravated by sitting, standing, or stooping over. Coughing and sneezing intensify the distress

because of the sudden action of the abdominal muscles producing a drag on the iliac bones. If both sides are severely involved the patient is bedridden; but if he is able to be up he limps, is bent forward and bears his weight on the unaffected side. The course is progressive and chronic over a period of years (some 5-15 years); is marked by periods of acute exacerbations, and is very resistant to treatment.

Examination and Diagnosis. (a) In the standing position, the patient is bent over, holding his hand on the affected joint; it is noticed that the pelvis is tilted downward and forward toward the sound side. This causes the leg on the affected side to appear longer.

(b) In the sitting position, it is noticed that the weight of the body is mainly taken on one ischial tuberosity. The pain can be aggravated by dividing the weight equally between the two tuberosities, or by asking the patient to reverse his position. The region of the sacroiliac joint may be swollen, puffy and tender if the condition is very acute. Movements at the lumbosacral articulation are painful, but this is because of the pull on the iliac bones. The pain is often referred to the gluteal region, only because of a secondary involvement of the sciatic nerves. If the pelvis is firmly steadied the body can be bent forward or backward and the legs moved with comparative ease. Forcible manual separation of the innominate bones produces severe pain, while compression tends to relieve.

(c) In the supine position if the hips are flexed with the knees straight, pain is intensified at the involved sacroiliac joint (this is known as backward torsion strain). With the patient lying on his face, bending the legs backward with the knees extended produces a forward torsion strain.

By the above manipulations pain at the sacroiliac joint may be reproduced, aggravated, or relieved depending upon the type of torsion present; and thus the degree of involvement and exact location can be determined.

Torsion strain causes the pain in the majority of patients with sacrocoxalgia, yet the x-ray findings are negative: only in cases of dislocation or arthritis of the joint the x-ray may show definite subluxation or lipping of the bony margins.

In the differential diagnosis must be considered arthritis or subluxation of the lumbosacral

articulation; coccydynia, sacralization of the fifth lumbar vertebra; neuritis of the sacral plexus, sensitive deposits near the tip of the coccyx and exostoses and fractures of the fourth and fifth lumbar vertebrae, sacrum or coccyx. Specific diseases such as sacroiliac tuberculosis, hip joint disease, pelvic and rectal diseases causing pain in the lower back must be carefully ruled out. Various types of tumors of the bones of the sacrum and pelvis, although not common, may cause intractable pain in the lower back.

Pathology. The morbid anatomy found in the greatest number of patients suffering with sacrocoxalgia is a torsion or subluxation of one or both sacroiliac joints with a resulting injury and inflammation of the synovia. Later abnormal adhesions are formed around the affected joint involving the synovia, joint margins and nerve endings. With the deposition of calcium the joints may become the site of marked arthritic changes.

Treatment. The first step is the removal of neglected foci of infection and general measures carried out as in other neuritic and arthritic involvements.

Then the back is carefully manipulated as suggested above under examination, the degree and type of torsion ascertained, and an attempt is made to overcome this torsion by proper manipulation. By this treatment, if correctly carried out, a great deal of pain can be relieved in some patients. Then a tight binder is applied around the pelvis to keep the joint in position. This may be accomplished by adhesive straps, binders of stout cloth or specially constructed belts. Many patients in spite of all one can do obtain very little relief.

Epidural Injections. It is for such patients that a study was begun to determine the effects of epidural medication on sacrocoxalgia and various allied conditions.¹ The method itself is not original, but was suggested by Cathelin² in 1901 when he attempted treating "various pelvic neuroses" by injection into the sacral canal of medicated solutions. The technic is as follows:

With the patient lying on his abdomen, the opening of the sacral canal is sought for with the fingers. This is located below the last sacral spine, just above the articulation with the coccyx. The skin over this area is cleansed with alcohol and infiltrated with a small amount of 0.5% no-

vocaine. A dry piece of sterile gauze is placed between the buttocks over the rectum to avoid contamination. Aseptic precautions must be observed at all times. The danger of infection³ of the epidural space must be always borne in mind. A needle 8 cm. long and No. 19 gauge is inserted into the opening at the apex of the sacrum. The angle at which the needle is inserted varies with different patients depending on the configuration of the bone and the thickness of the soft parts. The usual angle is between 20-30 degrees, but once in the canal the needle is pushed upwards parallel to the long axis of the bone for 4-6 cm. After pushing the needle through the skin considerable resistance is encountered at the sacro-coccygeal ligament. Once through this point the needle glides in easily. Sometimes difficulty is experienced in locating the sacral hiatus; and occasionally it is impossible to enter the canal, especially in fat women or patients with deformities of the sacrum, arthritic changes of the sacro-coccygeal joint or unusual tilting downward of the sacrum. In cases of incomplete formation of the sacral canal the opening will be found 2-3 cm. above the sacrococcygeal joint. Before injecting it is well to be sure that neither vein nor dura has been pierced, especially if a novocaine solution is to be used, this being determined by withdrawing the plunger of the syringe. The dural sac ends opposite the second or third sacral segment. The remaining space in the sacral canal is filled with cellular and fatty tissue and contains a rich venous plexus and nerve trunks which form the sciatic and pelvic nerves running from the end of the dural sac to the sacral hiatus.

The injection consists of either normal saline or 0.5% novocaine in sterile water; the latter is used in more sensitive patients. The solution must be at body temperature. 20 cc. to 100 cc. may be used depending on the size of the sacral canal, the resistance encountered and the patency of the sacral foraminae. Usually 50 cc. is sufficient for the average patient. The relief is usually immediate. During the injection the patient experiences some pain in the lower back, especially if given too rapidly and states that he feels the solution traveling down the affected side or leg.

Occasionally a patient may complain of pain at the site of injection for 1-2 days. Hot applications usually give prompt relief. Some

complain of dizziness and faintness when more than 50 cc. is given. This may be due to pressure on the end of the dural sac transmitted up towards the head, or to the fluid actually passing up to the cervical region (Ott).⁴ If novocaine solution has been used the symptoms may be attributed to rapid absorption of the drug towards which the patient may have an idiosyncrasy. (Rare.) When novocaine is used it is advisable to use a weak solution (0.5%) and inject only 10 cc.; after five minutes if no reaction occurs injection may be continued without any danger. Having the patient sit up for a few minutes and giving a little cold water to drink has sufficed for the treatment of any untoward symptoms in this series. There is no after disturbance because the solution does not enter the subarachnoid space, but is extradural. No after treatment is required; the patient immediately arises and leaves.

The total number of patients treated by this method including sciatica, chronic arthritis of the back and coccydynias number over two hundred. However, this report consists of 64 patients with definite sacroiliac involvement of varying degrees. The ages ranged from 30 to 70 years, and the duration from 2 to 18 years. 59 patients (92%) were completely relieved of the pain at the time; 2 (3%) partially relieved and 3 (5%) obtained no relief. Of the 64 patients, 50 received only one injection; 11 received 3 injections, at varying intervals of one week to one month; and 3 received 5 injections, 1 month apart each time, obtaining very little relief. The duration of relief varies. The longest has been 18 months, and the shortest one month. A large number are still under observation being watched for recurrences. The first injection seems to be the most effective if at all successful. After the fifth injection, if no relief is obtained it is futile to continue. It has been noticed that if the first injection was not made into the sacral canal but in the surrounding tissues, subsequent injection, although in the canal, is less effective and less certain to produce permanent relief.

SUMMARY

1. Epidural injection of saline has completely relieved the pain of sacrocoxalgia in 92% of patients.

2. The injection is harmless and gives relief in many instances where other methods have failed.

3. There are no dangerous untoward symptoms following the injections.

55 East Washington Street.

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DISCUSSION

Dr. H. A. Bollaert, East Moline: To talk on the subject of low back pain takes considerable courage. It is a subject that has been talked about a great deal and once in a while we get a new thought.

In his paper Dr. Alleghetti spoke about the great percentage of these sacroiliac pains being due to trauma. Quite a bit of controversy exists about this question. Some Englishmen who have a series of 2250 cases showed that in 1350 of these cases they have definite findings of arthritis, and although the symptoms may appear to be due to the immediate trauma, there is usually an underlying arthritis of the sacroiliac joints.

I think the Doctor has given us a number of points in diagnosis. He has given us several findings that we do not ordinarily find in looking over the literature that ought to help us distinguish sacroiliac conditions from sacrolumbar, and from myositis of that region.

As to treatment, this injection of the epidural space is a relatively new treatment and seems to be of considerable benefit to these people who suffer from low back pain. How much of this treatment can be carried out by the private practitioner in his private patients in his office is a question that will have to be answered by the private practitioner. We get these patients coming into clinics and they do what we tell them to do. I presume we can get them to take this kind of treatment. These patients, however, have gone long enough and tried every treatment that every doctor has suggested without success, and no doubt will go to epidural injections and appreciate the relief they get.

I would like to ask the Doctor what his experience is in the use of colloidal sulphur in these arthritic cases. I think it is worth while in arthritis or neuritic cases when other methods have failed to try colloidal sulphur intravenously. I think you will find a certain percentage of relief by the use of that method. Foreign proteins intravenously frequently give relief in arthritic cases.

In the methods of immobilizing the parts, I think we should not forget the use of body casts or rather back casts put on in a hyperextended position or a position of lordosis. Physiotherapy frequently helps these cases and I think in the beginning it is a good thing to use physiotherapy.

Dr. Joseph E. Alleghetti, Chicago, (closing): Concerning the arthritis, we find in our experience that that is usually a later finding. The first thing is usu-

ally an inflammation of the synovia or a subluxation. I did not make much point of that because of the necessity of making the paper short. Arthritis is a very important cause of pain and it is a very difficult condition to treat.

As to the injection treatment, I think it is really a very simple procedure, and it does not take much persuasion on the part of the doctor to have the patient take the treatment. The injection is very easily given and there is not much pain connected with it. The relief of pain will make the patient willing to have it done.

I have not used the colloidal sulphur, but we have used nearly everything else, small doses of salvarsan, autogenous vaccine, diathermy, and all sorts of proteins prepared by different manufacturers.

These patients here reported nearly all had had previous treatments. In the clinic at Rush we use all other treatment first and then use the injections of the epidural space. We occasionally have to resort to casts to get relief. That is a point I wish to mention, that in correcting the torsion if we find that belts or adhesive are not adequate, casts must be applied in the correct position, after the injection treatment.

THE IMMEDIATE TREATMENT OF COMPOUND INJURIES

SUMNER L. KOCH, M.D.

CHICAGO

The effort to make clear in the minds of medical students and young surgeons the underlying principles involved in the immediate treatment of compound injuries deserves the support of every member of this society because compound injuries are serious, because they are constantly increasing in number, and because the physician who sees the patient immediately after the injury has the best opportunity of securing for the patient the most satisfactory results.

The arrest of hemorrhage, the treatment of shock, a careful and systematic examination of the patient suggest themselves immediately as of first importance in the treatment of a patient who has just sustained a compound injury. Without further consideration of these well recognized principles I would like to discuss briefly a few other factors which we believe of very great importance. They are:

1. The technique of preparing the injured for operation.

2. The conversion of the contaminated wound into a clean wound.

From the Department of Surgery, Northwestern University Medical School.

Read before the Surgical Section of the Illinois State Medical Association, Springfield, Illinois, May 16, 1934.

3. The conversion of the compound injury into a simple injury by closure of the wound, either immediately or by a delayed primary suture.

1. *The technique of preparing the injured patient for operation.* 2. *The conversion of the contaminated wound into a clean wound.*—Again without discussing the treatment of shock, or the choice of the most suitable anesthetic I would like to consider briefly first the problem of preparing the field of operation. We are particularly interested in two things: not contaminating the wound further; not adding additional injury to that which has already taken place. Briefly, our plan of procedure is to cover the wound itself with sterile gauze; then with cleansed hands or hands covered with sterile gloves and with sterile sponges to wash a wide area about the wound gently but thoroughly with soap and water; finally to remove the sterile gauze covering and protecting the wound, and to wash the wound itself patiently, gently, but thoroughly with soap and water. If the wound is irregular and deeper pockets are present underneath torn flaps of skin and subcutaneous tissue this process of cleansing the deeper portions of the wound with soap and water is repeated after the sterile linen has been placed about the field of operation, and while the wound edges are held back with sterile retractors. Finally, any excess of soap solution is washed away with more sterile water. No antiseptic solutions such as tincture of iodine or hydrogen peroxide are used, either around the wound or in the open wound.

Such cleansing with soap and water may be all that is necessary to convert the contaminated wound into a clean wound. If, however, injured or devitalized tissue is present it should be exercised, with every care both to make such excision complete and not unnecessarily to sacrifice sound tissue.

3. *Closure of the wound.*—The next step is repair of the deeper tissues and closure of the wound; and so conversion of the compound injury into a simple injury. If one is satisfied that cleansing of the wound has been accomplished, it seems to us quite as illogical to leave the wound open for an indefinite period as it does to leave a herniotomy wound open after repair of the defect in the muscles and fascia. Complete healing and restoration of function

will take place most rapidly if the open wound is closed and heals without infection. The wound left open is certain to become infected within a few days.

If at the primary operation one is in doubt as to whether cleansing of the wound has been accomplished it is always possible to pack the wound lightly with a non-irritating dressing, such as gauze saturated with petrolatum, and carry out a delayed closure twenty-four hours later. If cleansing has been accomplished the wound can still be closed, and still heal by primary union.

I realize as keenly as you do that there is nothing new or nothing original in these ideas. They are simply a repetition of lessons learned by many men and at great cost during the World War, but lessons that unfortunately are not being persistently taught in our schools and hospitals, and so not being learned by younger surgeons as they graduate into practice. On the other hand the medical profession is so continually bombarded with literature extolling the virtues of this and that antiseptic that we are likely to lose sight of the fact that if skin and the tissues exposed in open wounds are carefully cleansed with an efficient solvent of dirt and grease that does not itself injure living tissue—in other words, with soap and water, no antiseptics are necessary, and by avoiding the addition of chemical trauma to the delicate and fragile tissue exposed in open wounds we can make the much desired healing by primary union and without infection more certain of attainment.

Four examples may help to emphasize these points.

Case 1. This patient, a workman of 40 years, was admitted to Passavant Memorial Hospital, March 29, 1934, shortly after he had sustained a crushing injury of the left hand. While repairing a freight elevator he was suddenly carried upward, clinging with his upstretched hands to the floor of the elevator. His left hand was badly crushed between the floor of the elevator and the upper beam of the doorway just as the elevator was brought to a stop. The soft tissues over the dorsum of the metacarpus were crushed and torn away, the skin over the dorsal surfaces of the proximal phalanges of the index, middle and ring fingers was white, bloodless and insensitive. Over the metacarpus a part of the extensor indicis proprius had been avulsed; the surface of the common extensor tendons to the index and middle fingers was ragged and torn, but the tendons were not divided.

After the hand and forearm had been shaved and

cleansed with soap and water the wounds themselves were carefully cleansed. The crushed and lacerated edges of skin about the wound on the metacarpus were cut away, leaving a denuded area involving almost the entire dorsum of the hand. The free ends of the partially destroyed extensor indicis proprius were sutured to the adjacent tendon of the common extensor. A free full thickness graft of skin of the exact size and shape of the defect was then dissected free from the abdominal wall and sutured accurately in place over the defect. A second similar graft was used to fill the defect in the dorsum of the ring finger. On the middle and index fingers it was possible to approximate the skin edges, after excision of the devitalized skin and subcutaneous tissue.

When the pressure dressing was removed and the wounded areas examined for the first time eight days after operation it was seen that a small area of dry necrosis, approximately one inch square, had developed where the large graft lay over bare extensor tendons. Elsewhere the grafts had healed perfectly. This necrotic portion of the graft was cut away a few days later, and the patient left the hospital three weeks after the injury. When healthy granulation tissue had formed over the raw spot, thirty-seven days after the injury and primary operation, a thin graft was laid over the granulations and healing was complete a week later.

Case 2. This patient, a man of 35 years, on April 29, 1934, tripped over a rug and as he fell thrust his left hand through the glass of a French window toward which he was walking. He sustained a deep transverse wound just above the wrist, with immediate and profuse bleeding. A doctor in the room immediately applied compression above the wound and shortly afterward applied a sterile dressing and pressure bandage over the wound. When I saw the patient ninety minutes later he could flex all his fingers well, but had a complete loss of sensation in the area of median nerve distribution and loss of the ability to rotate his thumb so that it faced the fingers.

The patient was immediately taken to the operating room and the hand and forearm carefully cleansed with soap and water; finally the wound itself was cleansed very gently with soap and water. After the field of operation had been protected with sterile linen examination of the wound showed in addition to complete division of the median nerve, division of the tendons of the palmaris longus and the superficial flexor to the middle finger, and partial division of the tendons of the superficial flexors to the ring and little fingers, the flexor pollicis longus and the flexor carpi ulnaris. The injured tendons were repaired, and finally the median nerve accurately reunited with very fine silk sutures. The wound in the skin and subcutaneous tissue was accurately closed without drainage and a light splint applied to maintain immobilization and volar flexion at the wrist.

The wound healed by primary union and the patient was dismissed from the hospital on the third day after operation. Some of the skin sutures were removed on the eighth day and the remainder on the eleventh day.

Case 3. This patient, a girl of 5 years, was admitted to Passavant Memorial Hospital, April 29, 1934, shortly

after having sustained a number of lacerated wounds of the left ear and left side of the face and neck as a result of an attack by a pet dog. There were seven distinct wounds, the two largest involved the face just in front of the ear, and the left upper lip and cheek. In the former a flap had been torn forward from the region of the tragus, with wide exposure of the parotid fascia and a small wound in the parotid gland itself. The largest and most serious wound extended through the entire thickness of the upper lip and cheek from a point one-fourth inch medial to the left lateral angle of the mouth to a distance of one and one-half inches upward and lateralward.

The wounds were carefully cleansed in turn with soap and water, and finally well irrigated with sterile water. Each in turn was sutured as accurately as possible, the wound extending into the mouth last of all. All the wounds except the last healed by primary union. The edges of the external, facial portion of the last wound separated slightly after removal of the fine horsehair sutures, but no infection took place and no leakage of secretion from the mouth. By keeping the wound edges approximated with gauze strips sealed with collodion to the skin at the sides of the wound, healing took place without further complications.

Case 4. This case, added for contrast, is quite a different story. The patient, a man of 33 years, was admitted to the Cook County Hospital, December 7, 1933, shortly after he had sustained an extensive lacerated wound of the left forearm with almost complete avulsion of a large flap of skin and subcutaneous tissue involving approximately three-fourths of the dorsal surface of the forearm, with resulting exposure and superficial injury of the underlying extensor tendons. The avulsed flap was still attached by a distal pedicle one and one-half inches in width.

The description of the immediate treatment given by the house officer is taken verbatim from the hospital record. "The wound was cleansed with green soap for a period of ten minutes. Iodine was flooded over the wound and swabbed into all portions of it. Alcohol was not spared. Tissues, loose and soiled, were debrided. Tendons were left intact. Wound was then bathed in hydrogen peroxide. Skin was closed with thirty-seven silkworm sutures."

When I first saw the patient five days later the left hand and forearm were tremendously swollen and inflamed. The flap of skin and subcutaneous tissue which had been sutured in place was grayish white and insensitive. Thin pus was oozing between the sutures from underneath the flap. When the sutures were removed and the gangrenous flap cut away a large mass of swollen, grayish yellow semi-necrotic tissue was exposed.

With the help of large warm wet dressings, elevation of the part and aseptic care the spreading infection was localized, and subsequently with the help of Dakin's solution and continued care in the application of the dressings the large raw area was transformed into a healthy granulating wound. Seven weeks, however, had passed before the wound was sufficiently clean for skin grafting. On January 26 one large thin graft

which covered the entire wound was applied over the raw surface. The graft healed by primary union.

The patient was dismissed from the hospital, February 13, 1934, sixty-nine days after the injury and after his admission. At that time the forearm was completely healed, but it was still necessary to support the wrist and fingers in a cock up splint, and movements of extension at the wrist and of the fingers and thumb could be carried out only weakly and with considerable difficulty.

These cases emphasize in addition to the points already stressed the facts that:

1. If superficial tissues have been destroyed at the time of injury they can and should be replaced immediately by some type of graft or flap, so as to ensure the third desideratum—transformation of the open wound into a closed wound.

2. That under favorable conditions primary nerve and tendon suture can be successfully accomplished, and thereby save for the patient time, expense, function and the necessity of further operative procedures.

3. That with sufficient care, and by not injuring still more the delicate subcutaneous and deeper tissues, wounds made by infected instruments—for example a dog's fangs—can be cleansed and transformed into wounds that are sufficiently clean to permit healing by primary union.

4. That chemical antiseptics do not safeguard the patient against infection and do not form an adequate substitute for careful cleansing with soap and water, gentle handling of tissues, and avoidance of both mechanical and chemical trauma.

5. And lastly, that accurate and painstaking care in the immediate treatment of compound injuries can save time; expense for the patient, his family, the municipality or those on whom the financial burden falls; and, most important of all, can save the function of a part that may be irreparably injured by the methods of treatment so frequently applied.

DISCUSSION

Dr. D. J. Lewis, Springfield: Dr. Koch's presentation has consisted in bringing before us surgical principles involved in acute injuries. I had the pleasure of reading his paper several times and find myself in complete agreement with the principles he presented. I would like to take this opportunity of emphasizing and bringing again to your attention the important points that he has brought out.

His first important factor is to so prepare the wound that no contamination takes place; second, relieve the wound of devitalized tissue so that repair of the wound may begin at once. Remember that this process of repair takes place only when vital tissue contacts vital tissue. Third, to so handle the wound that you do not cause mechanical or chemical injury. Alcohol solution or other chemicals, and mercuric compounds, actually coagulate the tissues. I think we can see the folly of this procedure—after carefully relieving the wound of devitalized tissue to further devitalize it by some chemical.

I wish Dr. Koch would be more specific in what he means by soap solution. I know some soap solutions contain alkalies which are irritating. Hypertonic and hypotonic solutions placed on tissues not accustomed to such solutions not infrequently cause devitalization of a small area of tissue. I believe that the application of sterile salt solution in some cases is as effective as the application of soap solution. I am not sure that washing the wound with soap and water makes it a clean wound. I would agree that it makes a relatively cleaner wound. I am surprised at how much Nature does in these wounds. By removing some contamination we are aiding natural processes and I do not think we can take all the credit for cleaning up a wound. I would suggest that a dry wound is desired before closure is begun. One must be careful that there is no tension on the suture line as this causes sloughing of tissue. Early skin grafting makes for restoration of tissue. In the closing I would like to emphasize another surgical principle, that is immobilization of the injured part for at least one week after injury.

Dr. O. H. Deichmann, Springfield: I would like to ask Dr. Koch if he used tetanus antitoxin in the patient that was crushed in the elevator.

Dr. Charles P. White, Kewanee: I would like to ask Dr. Koch if he finds it necessary to use gas bacillus vaccine of any kind and if so what preparation would he use. I presume that Dr. Koch has cleansed his wounds very thoroughly; many of us have tried to do that and have been surprised to find in twenty-four hours gas bacillus present and causing a lot of trouble. That has come to my attention three times in the last year after we felt we had done everything possible. What value would there have been had gas bacillus vaccine been used in such cases as a prophylactic?

Dr. Edward H. W. Kupke, Beecher: I would like to ask Dr. Koch if he wishes to imply that all antiseptics are contraindicated. If they are not beneficial they should be eliminated. If they are beneficial, which ones does he think are most valuable? If local antiseptics are of no value and soap and water be used, what specific soap does he employ?

Dr. Charles C. O'Byrne, Chicago: Concerning devitalized tissue and its replacement, skin that is taken from the back of the hand would be just as likely to live as skin from the abdomen. I think many times we remove skin that we think would be devitalized, whereas by placing in position without tension it would live. I remember a man who came to the hospital with the entire skin torn from the index finger. I looked it over and while considering what to do, he

reached in his pocket and pulled out the skin, saying, "would this be any help to you?" I turned it right side out and sewed it back on the finger. In a week you could not tell that it had ever been torn off. I think we are too free in removing tissue that is not entirely macerated.

Dr. Harry Mock, Chicago: I think most of us are in full accord with Dr. Koch on most of his paper. As brought out, there are wounds and wounds. I would like him to dwell a little more on secondary closure. There are so many serious crushing wounds, where it is impossible to state which tissue is completely devitalized and which tissue will grow. I cleanse these wounds and then pack with a piece of gauze saturated with Dakin's solution and wait forty-eight to seventy-two hours until the swelling and edema of these tissues have disappeared. I am surprised to find that so much of the tissue that I would have removed if I did an immediate debridement has become vitalized and closure can be made much easier than if I had cut away this tissue and made an immediate closure.

Dr. William H. Maley, Galesburg: According to Dr. Koch's paper, I think we have wasted a lot of time in laparotomy operations and putting on rubber gloves, when we might have used soap and water. This is a blow to the manufacturing druggists who make mercurochrome and iodine. However, mercurochrome has no place in my practice. I can remember Dr. Edward Ochsner thirty years ago was one of the first to come before this Society to introduce iodine for the cleansing and preparation of such wounds. I have always been a strong advocate of the use of iodine and I still stick to it. If we have no use for iodine in compound injuries we certainly have no use for it on the clean abdomen upon which we are going to operate. If we have an emergency accident—a limb rolled in the dirt of the street and run over and crushed—I still think iodine will do far more to save such a wound than soap and water, much as I think of soap and water.

Dr. Sumner L. Koch, Chicago (closing): Dr. Lewis is entirely correct in saying that we should not claim too much credit if after we carefully cleanse a contaminated wound with soap and water and close it the wound heals by primary union. The one thing for which we can claim credit is not adding injury, chemical or mechanical, to that which has already taken place. Normal tissues have considerable vitality. If we are careful not to add further injury by our surgical treatment we are doing much for our patient.

Soap and water constitute the most effective agent at our command which acts as a solvent of dirt and grease, and which does not injure living tissue. That is why we have used it for so many years to cleanse the surfaces of our bodies. Is it not entirely logical then to use it in cleansing those deeper tissues exposed in open wounds which have not the resistance to trauma that the covering tissues have acquired?

I do not know that it makes much difference what kind of soap one uses. In our own work we use ordinary green soap well diluted with sterile water.

Immobilization, as Dr. Lewis has emphasized, is a very helpful adjunct in the treatment of compound

injuries even though no bone injury has taken place.

We always give tetanus antitoxin if there is any question as to the likelihood of infection with tetanus bacilli.

I cannot speak with authority on the question of anti-gas gangrene serum. Men in whom I have confidence say the titer of the commercial sera available is so low that it is impossible to believe that the administration of 100 c. cm. of anti-gas gangrene serum can have much effect if gas gangrene is present. During the war surgeons day after day saw wounds infected with the organisms of gas gangrene. The patients recovered if the surgical treatment was adequate and carried out promptly after the first symptoms of infection appeared. Such infection, of course, develops from time to time in civil practice. The best prophylaxis, in addition to a well performed primary operation, and by that we mean careful cleansing plus complete excision of devitalized tissue, is repeated examination of the wound area. If symptoms of gas gangrene appear wide opening of the wound, excision of involved muscle tissue, and the efficient use of Dakin's solution after operation should bring about a satisfactory result.

I believe Dr. Maley has expressed my viewpoint pretty well. We would give up antiseptics as they are generally used in the immediate treatment of injuries and substitute "aseptic surgery" for "antiseptic surgery." And if instead of using tincture of iodine in the preparation of the operative field he will have the part carefully washed with soap and water the evening before operation, covered with a sterile dressing and a binder or bandage to hold the dressing in place until the patient reaches the operating room, and if in the operating room he will have the operative field again gently cleansed with soap and water I venture to predict that the incidence of wound infections and stitch abscesses will be kept at a minimum.

When Dr. O'Byrne took the piece of skin that the patient produced from his pocket, carefully cleansed it and sutured it accurately over the finger from which it had been torn he was doing a wise thing. He was applying an autogenous skin graft over the raw surface and transforming the open wound into a closed wound.

I told you of a patient in whom the skin and subcutaneous tissue were torn away from the dorsum of the forearm except for a narrow distal pedicle. The entire flap became necrotic, both because of infection and because the skin and subcutaneous tissue had been torn from the source of their blood supply. If the subcutaneous tissue had been carefully dissected away from the flap and the flap thus converted into a full thickness skin graft; and if after wound cleansing as described above had been accomplished this graft had been accurately sutured in place and held with a pressure dressing I believe the result would have been identical with that which Dr. O'Byrne obtained in his case.

Dr. Mock brought up the question of crushing injuries. I excepted that type of case from those under discussion because it is very difficult to tell immediately after a crushing injury how much of the injured tissue will live. Our experience has been quite opposite to his. In certain cases of crushing injury we have thought that tissue close to the wound looked viable

and so have treated it conservatively. Twenty-four hours later we have found the same tissue becoming cyanotic, and in another twenty-four hours it has become gangrenous. In the first case described, however, we thought we could tell how much tissue had been hopelessly crushed because it was white and insensitive. We cut away the crushed tissue and immediately covered the raw surface with a full thickness graft, with the result which you have seen.

SPINAL ANESTHESIA

W. L. WANER, M. D.

EVANSTON, ILL.

Spinal anesthesia during the past few years has become a standardized procedure in practically all of the large hospitals throughout this country and abroad. This presentation on spinal anesthesia is based on a study of 382 consecutive spinal anesthetics administered by the speaker during the past five years, in the St. Francis Hospital at Evanston. This institution, the eighth largest in the Chicago district, rating based on the total number of patients admitted during 1933, is a general hospital with no free beds; consequently, all of the spinal anesthetics in this series were administered to private patients.

Our staff is composed chiefly of men doing general practice. The majority of these men have found occasion to use this type of anesthesia with gradually increasing frequency. About twelve per cent. of our major surgery is done with spinal anesthesia. We have been rather conservative in its use and as a rule do not use it in ordinary cases in which there is no particular danger attached to general anesthesia. We have used spinal anesthesia in all operations below the diaphragm and in particular when a general anesthetic was contraindicated. We have found it to be of especial value in tuberculosis, in biliary tract surgery with liver damage, in urinary tract surgery with kidney damage, in certain cardiac conditions, in respiratory tract infections requiring abdominal surgery. We have performed under spinal anesthesia gastric resections, gastroenterostomies, gastrotomies, colostomies, resection of the rectum for carcinoma, and amputations of the inferior extremities, especially in diabetic patients. We find it the ideal anesthetic in cases of intestinal

obstruction. In this last condition, under spinal anesthesia, the relaxed abdominal wall may be lifted from the viscera and the abdominal cavity inspected. Often the involved area can be seen and located without traumatizing the bowel. One does not have the "boiling out" of the intestinal tract such as occurs frequently under general anesthesia with its attendant shock. In the words of Frank Martin of Boston¹ "the only contraindication in the use of spinal anesthesia, in properly selected cases, is ignorance or inexperience." He is indeed fortunate who does not experience serious difficulty sometime during the course of his first fifty administrations.

As a result of our successes with bad risk patients we are now using subarachnoid block more frequently with the better risk patient. In 1933 we used 32% more than in 1932. Statistics from our large hospitals and clinical centers show a progressive use of spinal anesthesia. It would seem that in institutions where the procedure has fallen into disrepute the difficulty lay not with the method but in errors of judgment in choice of patients and in errors of technique in its administration. For success in subarachnoid block a definite and precise technique is necessary. Most painstaking care must be exercised in choosing the amount of drug to be used, the location of the site of the puncture, the amount of dilution employed, and the height of anesthesia obtained. During the past four years we have employed novocaine crystals as our anesthetic agent in nearly all instances. We have had no fatalities attributed to this agent during this period.

Tuberculosis. We have experienced most gratifying results in the use of spinal anesthesia in tuberculous patients requiring surgery below the diaphragm. We have performed nephrectomies, salpingectomies, and laparotomies without disturbing the pulmonary system. Very recently we had a patient aged forty-eight years suffering from active pulmonary tuberculosis with a marked laryngeal involvement which was so painful that he refused to take fluids or food by mouth. A Spivack gastrostomy was performed with ease under spinal anesthesia and he had an uneventful postoperative course with steady improvement to date. Another patient aged twenty-eight, a member of our Sisterhood, during the course of an active pulmonary tuberculosis

Read before Section on Surgery at annual meeting of Illinois State Medical Society, at Springfield, Ill.

developed an acute appendicitis. The appendix was removed under spinal anesthesia and exploration of the abdomen revealed a tuberculous peritonitis. This patient made an excellent recovery.

Biliary System. Biliary tract surgery is one of the most dangerous operations that the surgeon is called upon to perform in the abdomen. All of the help available should be employed in dealing with this difficult problem. With spinal anesthesia gall bladder surgery often is performed with great ease. In addition to ease in the operative procedure shock is minimized. The anesthetic does not damage the liver, and the immediate postoperative course is much smoother than under general anesthesia. In our bad risk patients undergoing surgery of the biliary tract, we employ veneclysis of 5% glucose during the operation and subsequently. With this procedure we can usually control the blood pressure and maintain liver function. During the past three and one-half years we have had no deaths from gall bladder surgery performed under spinal anesthesia. Our mortality under general anesthesia has been eight per cent. We have had 119 patients operated upon for disease of the biliary system during the past three years. Twenty-five patients, or 21% of this series were operated upon under spinal anesthesia. All of these cases recovered. As previously stated we have used spinal anesthesia as a rule only when dealing with difficult cases or when there was contraindication for general anesthesia. Several of these patients were very poor surgical risks.

1. A man aged 54 was operated upon for a common duct stone. He was markedly jaundiced and running a fever. He had had a cholecystectomy on two previous occasions. He had a mild nephritis and a hypertension. The blood pressure was 190/100. The patient was operated upon under spinal anesthesia concurrently with intravenous drip of 5% glucose in buffer solution. Marked relaxation was obtained, the common duct identified, opened and the stone removed, which relieved the obstruction. A T-tube was placed into the common duct. We were able to maintain the blood pressure between 180 and 190 throughout the operation except for a period of about five minutes during which time the pressure fell to 140 but was brought up to 180 by increasing the rate of flow of the veneclysis. The patient left the operating room drain-

ing golden yellow bile from the T-tube, which means to us that his liver function had been maintained throughout the operation. The patient made an unusually smooth convalescence and was discharged from the hospital on the eleventh post-operative day.

2. Another patient was a man age sixty-four operated upon for empyema of the gall bladder. He had a bad cardiac condition and had suffered many attacks of severe angina pectoris. At the time of operation his fever was 102.4 and his pulse 140. The blood pressure was 90/60. He was given veneclysis of 5% glucose and then spinal anesthesia. The gall bladder had perforated. It was removed and two Penrose drains inserted through a stab wound in Morrison's pouch. This patient recovered and was discharged on the thirty-second post-operative day. He had no anginal attacks until after returning home. An attack occurred the day he received the surgeon's bill.

3. A young matron, aged twenty-three, entered the hospital suffering from an acute empyema of the gall bladder. Her temperature was 103 and the pulse 160. She was given veneclysis of 5% glucose and cholecystectomy performed under spinal anesthesia. The blood pressure was maintained at 120 systolic throughout the operation. This patient made a good recovery and was discharged on the thirteenth post-operative day.

We had no post-operative cases of pneumonia, atelectasis, or pulmonary infraction develop following spinal anesthesia in the series. Under general anesthesia we have been less fortunate. Several years ago in order to cut down the morbidity rate of pulmonary complications following general anesthesia, we began hyperventilation of our patients with carbon dioxide at the end of the operation and every four hours for the following two days. The same procedure has been used routinely with high spinal anesthesia. This may account, in part, for our good fortune; but the maintenance of the blood pressure during and after the spinal anesthesia is probably the more important factor.

Genito-Urinary Surgery. This offers one of the best fields for spinal anesthesia. Cystotomies and prostatectomies are performed with small doses. But care must be exercised in those elderly patients with diseased myocardia. Occa-

sionally they will manifest a post-operative reaction, occurring early, with lowering of blood pressure which may be due to shock or a myocardium affected by the anesthetic agent. We have found that this type of patient whether genito-urinary or another type of surgical case requires careful post-operative watching, frequent blood pressure readings and early administration of veneclysis if the pressure fall below normal limits. These patients stand anoxemia resulting from low blood pressure very poorly. Recently, under spinal anesthesia a patient age sixty-four had a vesical neck resection of the prostate, bilateral vasectomy, and an Andrew's operation for hydrocoele. 100 mg. of novocain were used and the operating room procedures were very smooth and uneventful. The anesthesia was below the umbilicus and no fall in blood pressure occurred. However, about four hours post-operatively the patient's blood pressure dropped very low with all the manifestation of shock. Veneclysis was instituted and the patient was out of danger in a few hours. Experience has taught us to be on our guard for post-operative collapse in elderly patients even when the surgery performed has not been extensive.

Congestive Heart Failure. Major surgery in cases of congestive heart failure tax the ingenuity of the surgeon to the utmost. These patients stand anesthesia and surgery very poorly. In three cases of congestive heart failure we have successfully employed spinal anesthesia. The first patient was a woman aged forty-nine who entered the hospital in a pitiful condition. She had a strangulated femoral hernia of twelve hours duration which was causing her intense pain. She was in a state of marked cardiac decompensation and had been so for a period of months, necessitating a sitting posture. She was cyanosed, dyspneic, coughing and overweight. Her tissues were edematous up to the costal margin. In desperation it was decided to attempt to give her relief. She was given a low spinal anesthetic while sitting on the edge of the operating table. In about ten minutes after the spinal anesthesia was given we were able to get the patient level on the table. The blood pressure which had been 105 at the beginning arose to 110 during the operation and remained at that level. The patient volunteered the statement that she was more comfortable and could

breathe better during the operation than she had been able to do for months. The obstruction was readily relieved and the patient returned to bed in remarkably good condition. The case has furnished much speculation regarding the effect of spinal anesthesia on the adrenal glands and the so-called² "drive of the adrenals on the thyroid" so frequently spoken of by Crile of Cleveland; also, the recent work of Blumgart and Levine³ in total thyroidectomy in cases of hopeless congestive heart failure would explain the apparent ease with which these patients withstand spinal anesthesia. Two other patients were operated upon with congestive heart failure in our series; these were for cesarean section. Both of these cases withstood the surgery quite well.

Cesarean Section Surgery. In cesarean section cases which are elected only after the patient has gone through the test of labor and has become exhausted, spinal anesthesia offers an interesting place in surgery. These patients exhausted from their long labor are poor subjects for a stimulating general anesthetic. An already tired-out heart under general anesthesia will be further exhausted so that when the operation is ended there remains little reserve and the patient is sent back to her bed to take up the struggle with her fighting power spent. The same patient under spinal anesthesia will require a surprisingly small dose of the anesthetic agent in her tired condition. She will actually rest during the operation, her pulse will slow, she will be serene, and afterwards will remark about the wonderful rest which she had enjoyed during the operation. This patient returns to her room rested and in good condition to take up the post-operative struggle.

Sensitive and Hyposensitive Patients. Among the contraindications for spinal anesthesia has been the hypersensitive, excitable, nervous individual. Recently we have been arbitrarily classifying all of our cases into two groups; the sensitive, and the hyposensitive. The hyposensitive, easy-going, tranquil type is the ideal subject for spinal anesthesia. The high-strung, nervous, sensitive type is the difficult one to control. We have found through the use of proper sedation that we can convert most of the sensitive group into the hyposensitive. We have employed pentobarbital sodium routinely for the past three years and find it a very satisfactory

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sedative. Routinely patients received gr. one and one-half sodium pentobarbital at bedtime. If there is no reaction from this dose three gr. are given three-quarters of an hour before operation for the sensitive and one and one-half gr. for the hyposensitive. With this procedure the nervous patient, whom we often consider an unfit subject for subarachnoid block, will become a willing and co-operative individual. As a rule I object to the use of morphine as a sedative in deliberate surgery cases. Frequently, it causes vomiting during the operation. With the use of sodium pentobarbital and the maintenance of blood pressure, vomiting under spinal anesthesia occurs infrequently.

Complications of Spinal Anesthesia. The two alarming complications of spinal anesthesia are vasomotor collapse and respiratory failure. In our early cases with spinocain as the anesthetic agent we experienced these complications several times. During the past four years we have been using novocain crystals dissolved in spinal fluid to make a five per cent. solution and injecting without barbatage. We have had no serious difficulty during this time. We employ ephedrin, in small doses, before and during the anesthesia if necessary, to help maintain the blood pressure. When we anticipate vasomotor collapse as in a poor risk patient, or when a high spinal anesthesia is to be given, we have found that intravenous drip of five per cent. glucose has invariably maintained the blood pressure at a safe level. I have had no respiratory involvement except in my early cases when the blood pressure fell to an alarming extent. Apparently, respiratory failure is secondary to vasomotor collapse, and is probably due to bulbar anemia. The Trendelenburg position has been of great value to us in preventing bulbar anemia.

Post-spinal complications in our series have been headaches and nerve injuries. Our early cases showed about five per cent. post-operative headaches. This has been reduced to about one per cent. by improvement in technique. The correct technique demands that the needle pierce the dura in such a manner as to prevent leakage of spinal fluid. The fibers of a dura run parallel to the long axis of the body—the bevel of the needle should separate these fibers and not cut them at right angles. This can be accomplished by introducing the needle with the

bevel parallel with the fibers of the dura. Also, fibers of the dura are usually in a state of tension—if the fibers are cut crosswise a gap is opened—if the fibers are merely separated they tend to close tightly. The loud “pop” of lumbar puncture as the needle cuts across the fibers of the dura are seldom heard when good technique prevails.

We have had nerve injuries in about one per cent. of our cases. The first accident involved the medial plantar nerve. The foot remained sensitive to touch for about one month and then cleared up. The lateral cutaneous nerve of the thigh was involved in one case but gave little difficulty. The third patient complained of intermittent pain in the calf of one leg for about ten days. These injuries are probably due to spearing a nerve trunk by introducing the needle too far into the spinal canal. The noiseless puncture means cautious proceeding with frequent removal of the stilet. The first nerve injury occurred at about the time we ceased getting post-operative headaches. The noiseless puncture sometimes makes it difficult to determine when the needle has entered the spinal canal. It is better to proceed very cautiously and frequently remove the stilet when in doubt. It certainly was not a pleasant experience to trade a headache for a nerve injury. All of the patients with nerve injury recovered within four weeks.

CONCLUSIONS

1. Spinal anesthesia in carefully selected cases and with proper technique may be safely employed in surgical procedures below the diaphragm.
2. Spinal anesthesia in our series of cases has been a factor in decreasing the mortality rate in surgery of the biliary tract.
3. Veneclisis has been a decided help in maintaining the blood pressure of patients undergoing high abdominal surgery while under spinal anesthesia.
4. Improvement of technique has decreased post-operative complications.
5. Proper sedation has increased the range of patients fitted for spinal anesthesia.
6. Some patients suffering with congestive heart failure can be successfully operated upon under spinal anesthesia.

7. Genitourinary surgery can be performed almost routinely with spinal anesthesia.

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DISCUSSION

Dr. Amos Fey, Galesburg: The most important part of any discussion on spinal anesthesia is the question of safety. Many times I have asked surgeons for whose judgment I have a great deal of respect, if they used spinal and they have replied, they were afraid to use it because they have had deaths in the hospital. Many of the enthusiasts on spinal anesthesia consider vasomotor collapse in a very light manner. I recently had a patient whose blood pressure dropped from 265 to 85 on the table. When a patient has that sort of occurrence, it really seems to me something for the surgeon to be concerned about. When they go into this work the safeguards that are necessary must be used. I believe occasionally a patient will have a drop in blood pressure with a rather low level spinal anesthesia. I have seen patients with spinal anesthesia below the umbilicus have a marked fall in blood pressure.

In discussing this question of the effect on the blood pressure it is necessary to know just exactly what happens when a patient has spinal anesthesia. This is probably familiar ground to those who use it. The anesthesia paralyzes the vasoconstrictors of the anterior roots and the patients do not get enough blood into the heart. Secondly, they get cerebral anemia, and as Dr. Waner says, respiratory paralysis is secondary to anemia and not the result of the anesthetic, and this is borne out clinically. Years before spinal anesthesia became popular, Jónnesco used it in operations on the neck and head, proving that the anesthetic can reach the medulla without causing respiratory paralysis.

We have used the Pitkin technic not because it is better than novocain crystals but because it has been better popularized. It is well to have expert instruction when one uses spinal anesthesia only occasionally. There are a few things I would advise to one who uses it only occasionally. First, take frequent blood pressure readings. If that is neglected you will not realize why collapse occurs, what the symptoms are due to, or how to treat them. Another point, in every spinal anesthesia test the height of the anesthesia with an Allis forceps. That is an easy thing to do. When the anesthetic is working well we forget how much novocain we have given the patient. I have been surprised to find we frequently give a good deal more anesthetic than necessary. The duration of the anesthetic should also be checked in every case.

Another important point is to keep the patient in the Trendelenburg position until he gets back to his room.

In conclusion, I feel that enthusiasts over spinal anesthesia overlook other anesthetics which will serve just as well. There is no reason for a patient to have spinal anesthesia in urological surgery when a caudal anesthetic will do just as well. The same is true in thyroidectomy. Why one should want to give a spinal anesthetic in goiter surgery, as a few enthusiasts advocate, when an inhalation anesthetic can be given with less danger is difficult to understand.

Dr. O. L. Zelle, Springfield: Spinal anesthesia contracts the bowels and is contraindicated in cases of acute appendicitis with perforation or any suspected perforation of the bowel.

Lower blood pressure is to be expected in spinal anesthesia. The vasomotor constrictors are temporarily severed, for that reason the injection of any drug to increase the blood pressure is contraindicated. In genitourinary surgery in a series of one hundred cases we have used spinal anesthesia in but two. All this work is done under transsacral block.

The height of anesthesia depends entirely upon the way the drug is injected. The amount of neocaine used depends upon the weight of the patient and the length of the anesthesia. The age at which spinal anesthesia can be done depends entirely upon the skill of the operator. Scopolamin and morphine are given one-half hour before the operation. The barbitol groups have proven unsatisfactory. I am very particular about having the patient in the Trendelenburg position and keeping this position for six hours after the operation. Spinal anesthesia is replacing the other types of local anesthesia which is a mistake. Dr. Fey spoke of spinal anesthesia in thyroid surgery; this is another case where spinal anesthesia is replacing other forms of local anesthesia. Blocking the cervical nerves as they emerge from the transverse processes is the ideal local anesthesia.

I have always one contraindication for spinal anesthesia—myocardial degeneration or extreme high or low blood pressure. It is much better to replace this form of anesthesia by doing a field block or some other form of local anesthesia.

Dr. J. Davies, Springfield: Spinal anesthesia is of value and should be given more attention. Those who are opposed to it take an arbitrary stand.

Dr. S. L. Governale, Chicago: Eight per cent mortality in biliary surgery seems to be an exceedingly high morbidity with any type of anesthesia. From personal observation and available statistical data, one learns that the mortality of cholecystectomy is about 2.5% regardless of the anesthetic agent employed. Although I am an enthusiastic advocator of spinal anesthesia, I cannot concur with the essayist in that he is able to reduce the mortality of biliary surgery from eight per cent to not even a single fatality.

However, I do agree with Dr. Waner that spinal anesthesia has reduced the morbidity concomitant with diabetic surgery; the latter is especially true in the presence of insufficiency hepatitis.

In regard to the technique and minutiae of spinal anesthesia, it suffices to say that any one who is adept in performing lumbar puncture, should be competent to

inject 2-3cc. of Spinocaine solution in the culdesac of the spinal canal.

I am not in full agreement with the essayist in his views pertaining to the reduction of pulmonary complications by the use of spinal anesthesia. I have seen three cases of postanesthetic pulmonary complications; namely, one is that of pulmonary collapse and two were pulmonary infarcts. We have seen a few isolated cases of terminal bronchopneumonia at autopsy.

In closing I should like to hear Dr. Waner's opinion concerning the occasional failure of effecting a complete anesthesia of the peripheral sensory elements with a simultaneous total ablation of the motor impulses of the spinal cord.

Dr. W. L. Waner, Evanston (closing): Our greatest concern with spinal anesthesia has been the maintenance of blood pressure. I do not agree that blood pressure in spinal anesthesia can drop to a low point and be safely permitted to remain there. We have had dangerously low drops in blood pressure using spinocain as the anesthetic agent; rarely have we had marked drop in blood pressure while using novocain crystals. This, I believe, is due to the fact that I have been able to control the height of anesthesia while using the novocain crystals. This is accomplished in two ways: first, choosing the proper interspace depending on the height of anesthesia desired; second, injection without barbotage. For instance, the first lumbar interspace is chosen for gall-bladder operations, 150 mg. of novocain crystals are dissolved in three cc of spinal fluid. This solution is then injected at the rate of one-half cc per second, without barbotage. The patient is then immediately placed level on the table and not changed to Trendelenburg unless the blood pressure falls more than ten points. Maintenance of blood pressure gave me the greatest trouble in the early use of spinal anesthesia while using spinocain. I have not used this anesthetic agent during the past three and a half years.

Our experience with veneclysis leads us to believe that it does aid materially in maintaining blood pressure of patients under spinal anesthesia. Of course, if the anesthesia has gotten out of control and one has anesthesia to the ears with inability to get a blood pressure reading, with pooling of blood in the splanchnic area, the only thing I know of that is of avail is a marked Trendelenburg position. However, the blood pressure should never be permitted to go down and down and down. The reading should be taken at least every five minutes and with any fall below ten or fifteen points immediate measures should be instituted to prevent further drop. I find ephedrin valuable in helping to maintain blood pressure. I use fifty mg. as a rule before starting the spinal puncture. I repeat the dose once if there is a fall in pressure during the operation. I do not use large doses because I believe that large doses have an untoward effect on the heart.

The question of mortality in biliary tract surgery in our hospital was raised by one of the discussants. It must be borne in mind that our hospital is an open one; we have about fifty staff members and an equally large number of visiting doctors. If a visiting doctor operates in a gall-bladder case for the first time and

the case terminates fatally it affects our mortality rate considerably. We have had two such instances in the series reported. Also, the eight per cent figure is for general anesthesia; our general mortality of course is not that high because there were twenty-five cases without a fatality operated upon under spinal anesthesia. Of course a mortality above five per cent is high. But Frank Lahey reported in 1933 that at the Lahey Clinic in Boston they had reduced their biliary tract surgery mortality from about five per cent up to 1927 to about 1.5 per cent since 1927. Among the factors responsible for this improvement, according to Lahey, were earlier recognition of disease, better operative risks, improved technique, and spinal anesthesia. This author recommends spinal anesthesia as the anesthetic of choice in biliary tract surgery.

I do not maintain that spinal anesthesia will reduce gall-bladder surgery mortality to nil. That would be ridiculous. No anesthesia can replace good preparation of the patient, good surgery and post-operative care. But it is a matter of our hospital records that we had a series of twenty-five cases with novocain spinal anesthesia without a single mortality during a three-year period. This was, of course, exclusive of malignancy.

My idea of biliary tract surgery mortality in leading medical centers in this country and abroad during the past ten years based upon a study of some 36,000 cases would indicate an average death rate of about 6.5 per cent. This should answer the question of general mortality. Cholecystectomy, of course, carries a much lower mortality.

I wonder if the discussant who thinks anyone adept at doing a lumbar puncture can give a spinal anesthetic would be willing to submit himself into the hands of such an individual.

One discussant asked for an explanation of why we sometimes get marked muscular relaxation without complete sensory nerve block. I think the explanation is on the basis of specific gravity of the spinal fluid and the anesthetic agent mixture. If the patient is placed in a supine position immediately after the anesthetic agent is injected and the mixture is lighter than the spinal fluid it floats to the top and only the motor roots are well anesthetized. If the patient is first placed in the prone position for a few minutes under these conditions, good sensory anesthesia will be obtained.

Just one other remark about spinal anesthesia and blood pressure: I do not think the anesthetic agent should ever extend higher than the fourth thoracic nerve. I never like to have anesthesia above the nipple line under any circumstances. I would rather suffer a five per cent failure than to get too high a spinal anesthesia with its attendant danger.

In closing I wish to express my appreciation and gratitude toward my fellow staff members and the Sisters of St. Francis Hospital whose fine cooperation has made this study of spinal anesthesia possible. If the speaker has brought forward anything which will aid others in the handling of spinal anesthesia, he feels he has been well repaid for his efforts.

ACUTE INTESTINAL OBSTRUCTION. ITS
EARLY RECOGNITION

EARLE I. GREENE, M.D., F.A.C.S.

AND

J. MAJOR GREENE, S.B., M.D.

CHICAGO

Whereas in most acute abdominal catastrophes the mortality and morbidity have rapidly fallen, in acute intestinal obstruction the mortality has changed little from that of forty years ago. The importance of early recognition of any acute abdominal catastrophe requiring early intervention is generally recognized. Also, it is an accepted fact that there exists a very definite correlation between the ultimate mortality figure and the time intervening between the onset of the disaster and the institution of adequate treatment. Acute intestinal obstruction is no exception to this rule. If all of us were to become "obstruction minded" and at all times keep a few pertinent facts in our minds, the unwarranted mortality could be appreciably reduced.

Several factors are responsible for the delay in recognizing cases of acute intestinal obstruction at an early period.

1. The prevalent teaching that acute intestinal obstruction is accompanied by obstipation and tympanites.

2. The general belief that the passing of fecal material or gas after an enema precludes an obstruction of the bowel.

3. The unfortunate but too frequent usage of narcotics.

4. The absence, early in the disease, of physical findings.

The occurrence of crampy intermittent colicky pains, often called "gas pains" by the patient, coming on at frequent intervals accompanied by nausea and vomiting must always be considered in the light of a possible case of intestinal obstruction. These symptoms become especially significant if such a patient had previously been operated upon. "Gas pains" a few days after an operation or many years later may mean the onset of an acute obstruction and must never be dismissed too lightly.

The vomiting in an early case is not of the projectile type, is not regurgitant in character, but is reflex. It is similar to that seen in rup-

tured ectopic pregnancy, twisted ovarian cyst or acute appendicitis.

If we are to recognize these cases early we must remember that obstipation and tympanites are late manifestations. Meteorism and complete obstipation spell delay. These symptoms must and will appear at some time during the course of an intestinal obstruction but usually at a time too late to offer the patient early remedial help.

Another unfortunate fact which must always be borne in mind, if we are to succeed in recognizing these cases early, is that when an obstruction to the flow of material through the bowel takes place no physical findings are found. There is no local tenderness. There are no masses unless the obstruction takes place in one of the hernial openings. There is no rigidity. There is no rebound tenderness. In practically every other intra-abdominal catastrophe there is some telltale evidence denoting the presence of a lesion within the abdominal cavity. Rigidity, tenderness, rebound tenderness may usually be elicited, but in an early case of acute intestinal obstruction this is not true. When seen early the general condition of the patient is not altered. There is no change in the blood chemistry, there is no increase in temperature, the pulse rate is normal, there is no change in the leucocyte count unless there has been considerable vomiting resulting in dehydration at which time the leucocyte count will rise. Should, however, a strangulation accompany the obstruction the picture changes. Local and general manifestations may then become quite a prominent part of the picture. A patient presenting intermittent crampy colicky pain with nausea and vomiting without manifesting local tenderness should be suspected of having a simple intestinal obstruction.

The stethoscope is a most important adjunct in the early recognition of this condition. The finding of loud intestinal sounds, reaching their maximum at the height of the pain, often explosive in character, suggests most strongly that an obstruction to the flow of material through the bowel is present. Although some increase in intestinal sounds may be heard in other colics or acute abdominal lesions, there is never the definite relationship between the borborygmi and the acme of the pain as occurs in an obstruction to the bowel. Intermittent attacks of crampy colicky pains, accompanied by nausea and vomiting,

without local findings, with loud intestinal sounds concomitant with the pain and reaching their maximum at the height of the pain is most suggestive of acute intestinal obstruction.

Another time worn theory which must be exploded if we are to make an early diagnosis is the appreciation that gas and fecal material may be passed successfully after an enema has been given even though an acute obstruction is present. Many lives have been sacrificed because too much reliance has been placed on the passing of a little gas, leading the physician to feel that no obstruction is present. The bowel distal to the obstruction is anatomically and physiologically normal and as long as gas or fecal material is present so long will this material be passed. Obstipation will occur, but like meteorism is a late manifestation.

The use of narcotics in any acute abdominal catastrophe must be deprecated. The masking of symptoms, the delay of a few hours after giving a narcotic is often enough to change the entire complexion of a given case. Unless the diagnosis has been definitely established the use of any narcotic is not justifiable.

The x-ray is one of the most important adjuncts we have at our command in aiding us to arrive at an early diagnosis in this most serious condition. Though gas is normally present in the alimentary tract, it is seen on an x-ray film only in the stomach and colon. The presence of gas in the small intestines in an adult is an abnormal finding and is indicative of an obstruction to the bowel. Within four hours after an obstruction takes place gas may be detected in the small bowel. Little preparation is necessary in taking such a film. Barium should not be used. A flat plate of the abdomen in the supine and standing position will usually give the necessary information. A collection of gas occupying a central position, its long axis in the transverse position, giving a step ladder like appearance is pathognomonic. At times fluid levels with gas above may be seen. In small bowel obstruction haustral markings are absent while the valvulae conniventes stand out prominently giving a "hering bone" pattern.

Finally, any patient, especially one who has previously had an abdominal operation, who complains of intermittent attacks of crampy abdominal pain, accompanied by nausea and vomiting,

without local findings, with loud intestinal sounds concomitant with the pain and reaching their maximum at the acme of the pain, who has or has not passed gas or fecal material after an enema and who on an x-ray film of the abdomen presents evidence of gas in the small intestines—such a patient has an acute intestinal obstruction. 310 S. Michigan Avenue.

DISCUSSION

Dr. J. Major Greene, Chicago: I wish to urge the more frequent use of the x-ray in the early diagnosis of acute intestinal obstruction. When we realize that within a few hours after an acute intestinal obstruction has taken place, we can find gas in the small bowel we have something that can really help us in the early recognition of acute intestinal obstruction. If acute intestinal obstruction is neglected, the patient gets into a condition in which the mortality rises tremendously. In the neglected case of acute intestinal obstruction strangulation may occur. In early acute intestinal obstruction all we have is a blockage of the bowel, but in acute strangulation we have an interference of the blood supply leading to the possibility of gangrene of the bowel. Operating on a simple intestinal obstruction is relatively simple with a low mortality, whereas, with strangulation the mortality rises tremendously because of the frequent necessity of doing resections of the involved portion of the bowel.

We have a simple and beneficial method for the treatment of the early case of acute intestinal obstruction which may save an operative procedure. The Levine tube with constant suction may in many cases of simple obstruction save an operation. The patient with strangulation will give symptoms of acute obstruction plus other findings. Because of the hemorrhagic discharge into the peritoneal cavity we have findings of tenderness, rigidity, rise in pulse rate, increase in temperature and all the symptoms of a very acute abdominal catastrophe. The early recognition of acute intestinal obstruction means a very low mortality, whereas the late recognition means a very high mortality.

Dr. William R. Cubbins, Chicago: I want to congratulate Dr. Greene on the conciseness of his paper and for stressing the absolute necessity of an immediate operation, particularly in those cases where there is a partial obstruction. A partial obstruction can be relieved with practically no mortality, but as soon as a complete obstruction occurs and endures for a while, the mortality jumps anywhere from 5% to 50%. When we are forced to make a resection, we may assume a mortality of 50%, if it is correctly and rapidly done, without permitting the bowels to eviscerate. An evisceration of any type which allows the blood in the bowel wall to cool is followed by shock, which in itself may be fatal. I doubt very much if one can make a differential diagnosis of obstruction of the bowel by a band as opposed to a loop of bowel that is strangulated. Distention of the bowel distal to the obstruction has not been observed in my experience. It is always the

bowel proximal to the obstruction that is red, swollen and friable. The bowel will empty itself distal to the obstruction. There is no doubt in my mind that lead poisoning, locomotor ataxia or tabes can cause a spasm of a certain portion of the bowel, with some distention proximal to that spot in which the spasm has occurred. However, the distention of the proximal bowel in any of these types never reaches that degree that is observed with a mechanical obstruction. I wish to say again that Dr. Greene is to be congratulated for urging early operative attack upon an obstructed bowel.

Dr. Amos Fey, Galesburg: There is no difference in the physical findings of late so-called simple intestinal obstruction and strangulation. The first discussor mentioned that strangulation damages the blood supply of the bowel. This also occurs in late "simple" obstruction from distention. If we attempt to differentiate too finely between these two types of obstruction we are going to allow simple obstruction to go to the stage of strangulation, or to marked distention and paralysis.

As to the mortality of enterostomy, in a series of cases at the Cook County Hospital the mortality was about 85 per cent. That was due, it seemed in these clinical records, to the fact that the paralyzed bowel was not able to empty through the enterostomy. Our only chance of avoiding this high mortality is not in doing the enterostomy, but in getting the patient operated on at a time when the bowel is healthy enough to preserve its function.

Dr. R. K. Packard, Chicago: I would like to call to your attention one sign which I think is very valuable in addition to the splendid presentation here given. Sometimes we see these cases in the middle of the night in a hospital where it is not easy to get the x-ray department out to make a picture. If one will observe very carefully, you very frequently see a definite rise at the end of the obstruction by a peristaltic wave. Sometimes it takes considerable time. It is particularly applicable in thin people where peristalsis is active. We have watched some of these patients as long as a half hour in order to find that sign. When we find that sign we believe it is a very definite diagnostic sign. I believe it is one of the important signs that should not be forgotten in the diagnosis of intestinal obstruction.

Dr. Harry E. Mock, Chicago: I want to call attention to three cases with 100 per cent. mortality. They were cases where a portion of the small intestine got into the femoral ring causing necrosis. The symptoms were obscure and gradual in development, but suddenly changed into a very acute toxemia. One patient died without operation and at autopsy we found a portion of the intestinal circumference in the femoral ring, necrotic. The other two were operated on and showed a necrotic portion of the gut wall in the hernial ring.

Dr. Charles C. O'Byrne, Chicago: I remember well a girl I operated upon. I was called to see her on Tuesday evening. She had been riding a motorcycle on Sunday. On Monday after luncheon she vomited. She did not go to work on Tuesday, and that night I was called. She was lying flat in bed, with absolutely no fever, tenderness or distention. On going over the

abdomen carefully, just about midway between the umbilicus and the gallbladder there was one point where there was slight tenderness. She was given an enema with fair result. I was about to leave, without making a diagnosis, when the girl asked for a drink of water. She drank it and it came up immediately. She said, "That is what I have been doing all day." I took her to the hospital and opened the abdomen and there was a complete obstruction by a band of adhesions clear across the bowel and attached to the mesentery on that side. It was about the size of a lead pencil. The abdomen was perfectly clean. When she abstained from food or drink she was perfectly comfortable, but when she took anything into the stomach it immediately came back.

Dr. Earl I. Greene, Chicago: I would like to say one thing regarding food poisoning and some of the other colics. They will give pain and colic but if you will use the stethoscope you will find that the increase in the peristaltic waves does not come at the height of the patient's pain. They will have pain it is true, but that concomitant factor, the hyper-exaggerated peristaltic signs coming at the acme of the pain, is absent and will aid in the diagnosis as to whether it is food poisoning, lead poisoning or some other disease associated with colic.

So-called simple obstructions very frequently go into strangulation. The distention, edema and gradually a shutting off of the blood supply lead to gangrene.

Concerning the so-called peristaltic waves that one can see in a case of acute intestinal obstruction, this is very common and very characteristic in low grade chronic intestinal obstruction. It is very common in obstruction of the colon. In obstruction of the small bowel it is rather unusual to find demonstrable peristaltic waves. If they do occur it aids in the diagnosis.

Dr. O'Byrne has probably had many other cases similar to the one he described. Concerning Dr. Mock's case of Richter's hernia, the fact that a portion of the bowel was caught in the ring but did not produce a complete intestinal obstruction explains itself because there was never at the time a complete intestinal blockade. The portion of the bowel shut off became gangrenous and then a fatal peritonitis developed.

THE RELATION BETWEEN THE PRE-OPERATIVE CONDITION OF THE PATIENT AND OPERATIVE MORTALITY IN EXOPHTHALMIC GOITER

WILLARD O. THOMPSON, M. D.; SAMUEL G. TAYLOR III, M.D., and KARL A. MEYER, M.D.

The Department of Medicine, Rush Medical College, and
The Cook County and Presbyterial Hospitals, Chicago

CHICAGO

It is generally agreed that, in most instances, the best treatment for exophthalmic goiter is the removal of most of the goiter under suitable

conditions. It, therefore, becomes of great importance to devise ways and means of keeping the mortality from operation at the lowest possible rate. In order to accomplish this end, two factors are paramount: 1. the skill of the surgeon, and 2. the condition of the patient at the time of operation. It is difficult to prove which of these factors is the more important. It is only necessary to compare the postoperative reactions of patients operated on by poor surgeons with those of patients operated on by skillful surgeons to be convinced of the importance of surgical skill. Before the days of iodine, the best surgeons had a mortality of from 1 to 4 per cent., while the mortality as a whole varied from about 10 to 15 per cent. At present the best surgeons have a mortality of from about 0.25 to 1 per cent., while the mortality throughout the country is much greater. This difference is partly a matter of skill developed through experience in performing a large number of operations, because the mortality record of every thyroid surgeon has shown a well marked reduction with increasing experience. However, the differences in the mortality rates of the best surgeons and surgeons of average ability are not to be attributed only to differences in surgical skill but also to differences in surgical judgment. The best surgeons learned when to operate and when not to operate, as well as the extent of the surgical procedures their patients would tolerate.

Important as surgical skill may be, this paper is concerned chiefly with the importance of the preoperative condition of the patient in determining operative mortality, a factor which we believe ought to be stressed as much as skill in performing a thyroidectomy. Through the co-operation of Dr. Tice and other members of the staff, we have had an unusual opportunity during the past two years to study the problem at the Cook County Hospital. By paying great attention to the preoperative condition of the patient it has been possible to reduce the mortality from about 13 per cent. to about 4 per cent. Before our study was undertaken, the mortality from toxic adenoma was 9 per cent., from non-toxic adenoma 4.1 per cent., and from simple goiter 2.7 per cent. Our series of other types of goiter are too small to draw conclusions from, there having been 12 cases of toxic adenoma with no

deaths and 14 cases of non-toxic adenoma with no deaths. It may be noted that the mortality among the patients with exophthalmic goiter that we followed is the same as that in the group of patients with non-toxic goiter followed by other observers. The significance of this reduction lies in the fact that it has been accomplished without any change in surgical personnel and without any significant change in surgical technique. For the proper evaluation of these figures, it is necessary to state that some of the reduction must be attributed to changes in treatment during the immediate postoperative period, notably, to the elimination of severe reactions from the administration of poor glucose both subcutaneously and intravenously. While the mortality of 13 per cent. may seem enormous, it should be borne in mind that the mortality in all large municipal hospitals is very high. The rate of 4 per cent. is still too high and we have hopes of reducing it further. However, the mortality in large municipal hospitals, where all general surgeons of varying skill do goiter surgery, may never be reduced to the level reported from highly specialized private clinics, where only two or three men of unusual skill do all the thyroid surgery. We consider that the single most important factor in the reduction in mortality has been the preoperative condition of the patient. In order to get the patients into the best possible condition for operation, it has been necessary to pay great attention not only to the administration of iodine but also to emotional instability, muscle weakness, rest, diet and infection.

Iodine. Although we do not minimize the great value of iodine, too much reliance has been placed on it in the past. There has been a tendency to feel that as long as iodine was being given, little else mattered. It was claimed that it abolished crises and the need for multiple-stage operations. With increasing experience, however, it was gradually learned that patients died from postoperative crises in spite of the administration of large doses of iodine and that it was still necessary to perform the operation in at least two stages in all patients in whom there was any doubt about the ability to withstand surgery. Iodine has, therefore, come to be regarded as an invaluable aid, but one that must be used not alone, but in conjunction with every other worthwhile therapeutic measure.

It used to be taught that a thyroidectomy should be performed as soon as the metabolism shows a maximum reduction during the administration of iodine, namely in from 7 to 14 days. However, rigid adherence to this principle has resulted unnecessarily in death in some patients, for the reason that maximum clinical improvement rarely occurs as soon as the metabolism has shown its maximum reduction, but only some time later when the patients have had an opportunity to derive the benefits of the lowered rate of metabolism. It was thought that if operation were delayed, there was great danger of a relapse occurring in spite of the administration of iodine. The danger of such a relapse is not great if operation is delayed from 1 to 3 weeks beyond the time of maximum reduction in metabolism. In some patients we have delayed operation as long as 3 months with no untoward results. When the metabolism does rise after an initial reduction, we are faced with the problem of the development of refractoriness to iodine and its management. If the rise in metabolism occurs very gradually over a period of many weeks, it is probably not a contraindication to operation if other things are satisfactory. If the metabolism is rising rapidly, however, it is unwise to attempt any surgical procedures, although the most desirable method of treatment under such circumstances is still to be worked out. It is not yet clearly established whether the development of this refractoriness is caused by the iodine itself or by the natural course of the disease. In some patients we have omitted iodine for from 1 to 2 months under these circumstances and then performed a thyroidectomy after a second remission during the administration of iodine. In these instances, the effect of iodine has been just as great after a period of omission as it was initially.¹

We have had a patient under observation recently in whom we thought it wise to modify this plan of procedure. The patient was an Italian girl of 23, whose metabolism, during the administration of iodine, rose unusually soon after the initial fall. After several weeks her appetite became poor, she vomited a few times and her weight dropped markedly. Not all patients who show a rise in metabolism during the administration of iodine become completely refractory to it.¹ If iodine had been omitted and the meta-

bolism had continued to rise, the intensity of the disease might have become still greater and the patient might have died. We therefore decided to continue iodine and give x-ray treatment in an effort to tide her over the period of refractoriness. After each x-ray treatment there was a rise in basal metabolism for several days and an increase in the vomiting, to be followed by some improvement after about one week. Because of the temporary increase in the severity of the disease which follows x-ray treatment, this form of therapy should not be employed in patients who are desperately ill in spite of the administration of iodine. Moreover, the treatments should not be given at intervals of less than one week, because two reactions coming close together may jeopardize the life of the patient. In x-ray therapy for toxic goiter, the motto should be to make haste slowly. The treatment should be started while the patient is still in good enough condition to stand it and with the expectation that, in most instances, the beneficial effects do not become definite for several weeks. After the first two treatments the patient's loss of weight ceased and she began to gain. At present she has gained 17 pounds and is in excellent condition, although her metabolism is still plus 50 per cent. Indeed, she is now in much better condition to withstand operative procedures than she was two weeks after starting iodine, although her metabolism is plus 50 per cent. now as compared with plus 34 per cent. then. Numerous other observations have impressed upon us the fact that the clinical condition of the patient is usually of more value in gauging the risk of operation than the height of the basal metabolism, regardless of whether iodine is being administered or not. It is the experience of every worker in the field to see patients with rates of plus 60 per cent. before operation have comparatively mild postoperative reactions and patients with rates of plus 20 per cent. die of a thyroid crisis after operation. This principle is of value in the treatment of patients who show no response to iodine initially. Provided the patient is in good condition, operation can usually be proceeded with, even if the metabolism shows no reduction during the administration of iodine.

We have pointed out elsewhere that the dose of iodine does not matter within very wide limits

197940

and the form in which iodine is administered seems to be of little consequence.^{2,3}

Emotional Instability. It has been our impression that the single most important factor in gauging the ability of patients to withstand operative procedures is the degree of emotional instability, regardless of what happens to the basal metabolism. A postoperative thyroid crisis in a patient who has shown a well marked reduction in metabolism before operation is usually associated with the presence of marked emotional instability in the preoperative period. The intensity of the reaction following thyroidectomy is, in general, directly related to the intensity of emotional instability before operation, a fact which Plummer would explain by saying that the degree of emotional instability and hence the severity of the postoperative reaction, depends upon the rate at which the "abnormal product" is formed.

A thyroidectomy for exophthalmic goiter is never to be regarded as an emergency operation and when it is done as such the outcome is usually not favorable. Whenever emotional instability is marked, the operation should be postponed until it decreases in intensity. Usually this occurs with rest, which has been clearly demonstrated to exercise a beneficial influence on the disease. For this reason we have always made it a point to prepare patients for operation in the hospital. While we do not keep them completely confined to bed except in the presence of cardiac decompensation, the freedom from the daily routine of home is essential for maximum improvement.

Muscle Weakness. Marked muscle weakness, as gauged by inability to climb up on a chair without assistance, is an unfavorable sign and is often present in patients who also show marked emotional instability. When the two are pronounced in the same patient, operation should never be proceeded with. Like emotional instability, its intensity diminishes with rest and the administration of a diet sufficiently high in calories to make the patient gain weight.

Diet. Marked loss of body weight has come to be regarded as an unfavorable sign in exophthalmic goiter. This loss occurs for only one reason, namely, an inadequate caloric intake. Provided patients will eat enough, they can always be made to gain weight. One point that is

not always appreciated is that, in order to accomplish this end, it is necessary that the caloric intake exceed the basal by about 100 per cent. This means that most patients must receive from 4,000 to 5,000 calories daily. Such a diet will inevitably contain sufficient protein to replace what has been lost from the body storehouses.

A well marked gain in weight is a favorable sign, even if the basal metabolism shows no reduction and, when combined with a marked reduction in metabolism, points to a favorable outcome from the operation.

Infection. One problem that we have had to contend with has been infection. It is very common for our patients with exophthalmic goiter to develop severe upper respiratory infections, notably acute follicular tonsillitis. The recovery from these is often slow and there is often a tendency to operate on patients while they are still running low-grade fevers. The danger of the infection spreading to the lung during operation cannot be stressed too strongly, and no surgical procedures should be undertaken until the temperature has been normal for at least two weeks following the milder infections and for four weeks following the more severe infections. We have recently had one such patient who developed a complete heart block three weeks after her infection had subsided. Two such patients died before any surgical procedures were carried out. Of the two deaths among patients that one of us (W. O. T.) followed in Boston, one occurred in a patient who had a very severe case of acute rheumatic fever three weeks before operation and the other in a man who had a sore throat and was still running a low-grade fever shortly before he was operated upon. Of the six patients who died following operation in the Presbyterian and Cook County hospitals in Chicago, while wholly or partly under our care, in three there was an upper respiratory infection shortly preceding operation. Two of these patients died of pneumonia on the fourth and fifth postoperative days, respectively, and one from pressure on the trachea by a hemorrhage. One of the patients who died from pneumonia also had diabetes. The other three patients died of typical postoperative crises. In these three, emotional instability was marked before operation and in all three, but particularly in two of them, muscle weakness was also present in marked

form. In one of these patients the basal metabolism had dropped from plus 100 per cent. to plus 30 per cent. with rest and iodine; in one, although the metabolism had shown no reduction during the administration of iodine, it was only plus 30 per cent. and he had gained some weight at the time of operation; while in the third, the response to iodine was slight, the basal metabolism being plus 55 per cent. at the time of operation, although he had gained fifteen pounds in weight. The operation on the third patient had been rendered technically difficult, and hence unduly long, by scar tissue following previous ligations of the superior and inferior thyroid arteries.

It is still necessary to stress the fact that cardiac irregularities, in particular auricular fibrillation, are regarded too seriously. Transient attacks of paroxysmal tachycardia appear to be more serious than those of auricular fibrillation. On the whole, however, the indications for thyroidectomy are virtually the same whether cardiac irregularities are present or not. We have sometimes asked surgeons in vain to perform a thyroidectomy in patients with auricular fibrillation, only to have the cardiac damage increase because of the delay. About the only common cardiac abnormality that need cause alarm is decompensation which does not clear up with rest. Under these circumstances a thyroidectomy should not be performed until it becomes evident that operation is a last resort. A much higher mortality rate than in patients with normal hearts may then be anticipated. It is debatable whether digitalis and quinidine are of any value. We do not use either drug. In particular, it has been our experience that digitalis has seemed to do no good and in some instances to do harm.

SUMMARY

Apart from surgical skill, the most important factor in determining the risk of thyroidectomy for exophthalmic goiter is the preoperative condition of the patient. Great attention should be paid not only to the administration of iodine, but also to emotional instability, muscle weakness, rest, body weight and infection.

The two most important factors in gauging the risk of operation, regardless of the height of the basal metabolism, would appear to be emotional instability and muscle weakness. When

both are marked in the same patient, an unfavorable outcome of the operation is common.

Because of the beneficial effect which rest exercises on the course of the disease, patients should be prepared for operation in the hospital, although they should usually be allowed ambulatory privileges.

In a few selected patients in whom the disease is refractory to iodine, x-ray treatment may be used to prepare the patient for operation, but this form of therapy should never be used in desperately ill patients because it produces a temporary increase in the severity of the disease. The treatments should not be given at intervals of less than one week, and no improvement should be expected in most cases for a period of several weeks.

A gain in body weight is a favorable sign, but in order to produce a gain, the caloric intake in most cases must exceed the basal by at least 100 per cent.

Following mild upper respiratory infections, no operative procedures should be carried out for at least two weeks after the temperature is normal, and following severe upper respiratory infections, for at least four weeks after it is normal.

The criteria for gauging the risk of operation are the same in patients who present cardiac irregularities as in those who do not.

The time to prevent postoperative crises is in the preoperative period. By applying this principle to the treatment of exophthalmic goiter in the Cook County Hospital in Chicago, it has been possible to reduce the operative mortality from about 13 per cent. to about 4 per cent. without any change in surgical personnel or significant change in surgical technique.

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3. Thompson, W. O.: Factors of Importance in the Treatment of Exophthalmic Goiter. *Illinois Med. J.* **62**: 520, 1932.

DISCUSSION

Dr. George Parker, Peoria: It is certainly very gratifying to learn of the reduction of mortality in exophthalmic goiter that Dr. Thompson and his colleagues have brought about.

The points mentioned in this paper are undoubtedly of the greatest importance. Formerly, before we began

to study the use of iodine and the other factors mentioned by the essayist, we paid considerable attention to the heart.

Now the condition of the heart has more or less faded out of the picture. You do not hear so much discussion about heart conditions in hyperthyroidism. In fact, we know now that there are no distinctive histopathological changes in the hearts of patients dying of acute hyperthyroidism.

There are, however, some heart conditions which probably influence mortality. Auricular fibrillation is very common, and is not a contraindication to operation. Auricular flutter, however, is a bit more serious, and should receive attention. Hypertensive heart disease and angina pectoris also are no especial contraindication to operation.

Congestive heart failure is more serious, and in advanced cases of this disorder with acute hyperthyroidism, the mortality will be lowered by giving in advance salyrgan and large doses of ammonium nitrate. It has been our experience that digitalis and quinidine do not alleviate the irregularities of the heart in hyperthyroidism, but possibly are helpful in some cases of flutter. Such cases are best treated with digitalis and quinidine after the thyroid is removed. It is here that you obtain the best results.

The points mentioned in Dr. Thompson's paper are more accurate indications of operability than the severity of cardiac lesions. I do not believe that surgeons hesitate to operate on hyperthyroid cases whose hearts are rather seriously damaged.

It is rather hard to evaluate heart cases at times, but I do know this much about them: As long as a hyperthyroid condition exists the heart is not very apt to improve; and although it does raise the mortality by taking on some of these seriously damaged hearts, the patient certainly should have the opportunity of surgery and I believe the prognosis is better if he is operated on. The recent work of Dr. Blumgart with which many of you are familiar demonstrates that total thyroidectomy can be done with good effect in the presence of serious heart lesions.

Dr. Lindon Seed, Chicago: Dr. Thompson's paper deserves more commendation than usual. Every physician dealing with goiters ultimately arrives at about the same criteria to determine operability in exophthalmic goiter. My own criteria are largely three in number:

1. The patient must be adequately iodized.
2. The weight curve must be favorable.
3. The loss of strength not too great.

You will note I do not include emotional instability. Yet in retrospect that is wrong. Before deciding on an operation, I always have the patient get out of bed and walk down the hall and step up on a chair. Then I take a look. If she is very restless, if there is a marked tremor, and the pulse rate has risen to 150 or 160, I postpone the operation. I have always considered this a test of the reaction to stress and strain, but it is at the same time a test of emotional instability.

I would like to subscribe to two points that Dr. Thompson has brought out with which all do not agree.

First, ligation of the superior thyroid vessels is a useless operation; second, that iodine can be given in exophthalmic goiter just as long as one feels like giving it. I have been impressed in two respects with Dr. Thompson's paper. First, is the thoroughness and carefulness of his case records. When I look at his records I feel a little ashamed of my own. The second point is also a little disconcerting. A group of surgeons are removing goiters with a certain mortality. An internist prepares the patient and cuts the mortality rate to one-third. A surgeon likes to delude himself into believing that a clever operation is quite an accomplishment. It would appear as though there were a little doubt upon that point. It has been said that there is no one more dangerous than a clever surgeon, and there is a certain amount of truth in that more or less facetious remark.

Dr. Hugo R. Rony, Chicago: I would like to ask Dr. Thompson if he has had any experience with irradiation of the hypophysis in the treatment of exophthalmic goiter.

European authors reported recently remarkable results with x-ray treatment of the sellar region in seemingly intractable cases of toxic goiter.

Dr. Thompson (closing): I am very glad to hear that Dr. Parker feels the same way about digitalis and quinidine as we do.

Henry Plummer pointed out years ago that he thought digitalis was harmful. His reason for this was that the mortality from toxic adenoma remained at 3.5 per cent. long after the introduction of iodine until the administration of digitalis in such cases was stopped, whereupon it dropped to one per cent. We never use digitalis in preparing patients for operation, regardless of whether the heart is fibrillating or not.

I am very glad to hear that Dr. Seed agrees with us on the indications for operation. Once again we shall have to draw on Plummer, as Dr. Seed has done. Dr. Plummer has told me on more than one occasion that the thing that largely determines whether a patient will die or not following a thyroidectomy is the intensity of emotional instability which he in turn considers to depend upon the rate of production of "abnormal product."

There is no doubt, of course, that success in the management of this disease depends upon intelligent cooperation between physician and surgeon. I do not mean to minimize the importance of surgical skill which is of the greatest importance, a fact which Dr. Seed himself has demonstrated.

With regard to Dr. Rony's question, we ourselves have not given x-ray therapy over the hypophysis in any case of exophthalmic goiter.

Did I understand you to say these were your results? (No, not mine, just reports.—Dr. Rony.)

Of course much work has been done on hyperplasia of the thyroid following administration of extracts of the anterior lobe of the pituitary. However, I should like to point out that the clinical picture of acromegaly is different from that of exophthalmic goiter, and I doubt very much whether treatment of the hypophysis will cure exophthalmic goiter, although the report is certainly a very interesting one.

AGRANULOCYTOSIS

FREDERIC W. BURCKY, M. D.

EVANSTON, ILLINOIS

History. As O. H. Perry Pepper¹ has indicated, it was the work of Werner Schultz,² reported in November, 1922, that correlated certain ulcerative sore throats with characteristic blood changes. This syndrome was later named agranulocytic angina by Friedemann.³

As early as 1857, Gubler⁴ described a gangrenous angina which he differentiated from diphtheria, and in 1865 Trousseau⁵ published a similar description.

Peter,⁶ in 1870, gave an accurate account of the gross appearance of the blood in gangrenous sore throat.

Morrell Mackenzie,⁷ in 1880, in his "Manual of Diseases of the Throat and Nose," described a gangrene of the pharynx, distinguished it from diphtheria and scarlet fever, and called it "putrid sore throat." This term was used commonly for about twenty years.

Pepper states, "It is further interesting to note than by the beginning of the new century the text-books of nose and throat diseases had begun to omit the heading 'Putrid Sore Throat,' until by the time Schultz described the syndrome there was no description in the text-books which corresponded at all to the picture of agranulocytic angina. In the recent books, of course, this omission has been rectified by the description of the syndrome under its present name."

Since 1922 there has been a constant and increasing study of this disease.

Etiology. The etiology of agranulocytosis has not as yet been definitely proved. A great many investigators have attempted, by various types of inoculation in animals, to produce the analogue of clinical agranulocytosis. Until quite recently these have been unsuccessful.

Emery W. Dennis,⁸ in June, 1933, reported a series of experiments in rabbits which show great promise. He was impressed by the capability of certain pyogenic bacteria (streptococci, staphylococci, and *Pseudomonas aeruginosa*) to produce in culture media a toxin, leucocidin, which destroyed white blood cells, especially granulocytes. This information was derived largely from the work of Nakayama,⁹ Gay and

Oram,¹⁰ Van de Velde,¹¹ Reudiger,¹² and Gheorghiewsky.¹³

The bacteria most frequently found in the cases of clinical agranulocytosis reported by other workers, which he reviewed, were streptococci and staphylococci. Dennis felt that if viable cultures of such organisms could be enclosed in a membrane which would permit egress of only the soluble products of bacterial metabolism, leucocidins, an experimental agranulocytosis could be induced in animals.

He brought about this condition by injecting a living eighteen-hour culture of organisms into parchment capsules and sealing the punctures with celloidin. After a thorough soaking in 70 per cent alcohol, these capsules were introduced into the abdominal cavities of twenty rabbits, through small incisions made under aseptic conditions. Two rabbits received capsules of sterile broth as controls and were entirely negative. *Staphylococcus aureus*, *Streptococcus hemolyticus*, *Streptococcus viridans*, and *Bacillus proteus Asiaticus* were separately used, all producing granulopenias. *Streptococcus viridans* produced, in two animals, a syndrome practically identical with acute clinical agranulocytosis, terminating fatally.

Dennis suggests "that agranulocytosis in man is due to the action of leucocidin rather than a specific microorganism." His work, if corroborated, will be exceedingly important.

Non-infectious toxic agents have frequently been suspected of producing agranulocytosis. Many cases have been reported following the use of arsphenamine.^{14,15,16,17,18} It is therefore important that all cases of infection which are being treated with arsenic have frequent white and differential blood counts.

Roy Kracke¹⁹ has suggested that the vast increase in the use of coal tar benzol derivatives as therapeutic agents, in the past few years, may be responsible for the recent increase in the number of cases of agranulocytosis reported. Watkins and Giffin,²⁰ and Madison and Squier,²¹ have indicated amidopyron and barbiturates as specific members of this group.

Fitz-Hugh and Comroe²⁰ reported two patients who had taken quinine for "supposed malaria" at various times during their lives, and mention it as a possible etiological factor.

Doan^{21,22,23,24} and others believe that a defi-

ciency of purine and nucleotide production in the body permits, in part at least, the destruction of the granulopoietic tissues.

A slightly larger number of the reported cases of agranulocytosis have occurred in women, although in Fitz-Hugh's series of 18 cases only seven were females. His youngest patient was 19, the oldest was 78, and the average age was 48.1 years.

Heredity is supposed to have no influence as an etiological factor. In my own practice I have seen one instance in which a daughter developed a granulopenia (3,800 leucocytes with 12 per cent. granulocytes) following a sore throat from which she recovered. This occurred ten months after the onset of a fatal agranulocytosis in her mother which also began with a sore throat.

Allergy has been considered as a causative factor for this disease.

Agranulocytosis is not thought to be contagious in the same sense as measles or smallpox.

In the chronic type there is frequently a tendency to the lowering of the white count and granulocyte percentage during menstruation.¹⁸

Pathology. The pathological manifestations of agranulocytosis are characterized by destruction of the granulopoietic tissues, especially the bone marrow; marked lowering of the leucocyte content of the blood, especially the granulocytes, sometimes to the point of their complete disappearance; ulcerative lesions of the mucous membranes; petechial hemorrhages, and in the more chronic forms anemia of a secondary type.

Destruction of the granulopoietic tissues begins early in the disease, is especially marked in the bone marrow, and has been demonstrated in practically every patient who has been examined post mortem. If clinical improvement occurs, the bone marrow shows areas of hyperplasia. The leucocytes in the blood are markedly diminished in numbers, Fitz-Hugh reporting a total white count of 50 cells. With these very low counts there is usually a complete absence of all granulocytes, basophilic and eosinophilic as well as neutrophilic. Therefore, the name "malignant neutropenia" is not correct and should be abandoned. If any improvement in the patient's condition occurs, various immature forms of granulocytes gradually appear in the circulating blood (myeloblasts, normoblasts, myelocytes, and megakaryocytes).

Gangrenous, ulcerative mucous membrane lesions are frequently seen. These occur most often in the mouth and throat, but also are found in the colon and rectum, the vagina, the urinary bladder, and in the trachea and bronchi. These are necrotic in appearance, have very little underlying and surrounding inflammatory reaction, are covered with a dirty, gray membrane, and are frequently foul smelling.

Bleeding occurs often, both as petechial hemorrhages and from the ulcerative lesions.

Symptoms. Marked prostration is the most common symptom manifested in agranulocytosis. It comes on as early as twenty-four to forty-eight hours after the onset in acute cases, is usually pronounced during the entire course of the disease, and varies in direct proportion to the granulocyte content of the blood.

Fever is nearly always present and usually quite high. Fitz-Hugh reports a maximum oral temperature of 105.5 degrees and Rosenthal²⁵ 107.0 degrees in one patient.

Pain in the areas involved by the ulcerative lesions is a frequent complaint.

A rapid and sometimes thready pulse is often noted.

Evidences of late secondary infections, such as bronchopneumonia and general sepsis, when they occur, present themselves in the characteristic manner.

Diagnosis. The diagnosis of agranulocytosis can be definitely made only when the white blood count is greatly reduced, usually below 1,000 cells per cubic millimeter, and when the granulocytes are either completely absent or found in very small numbers, and usually abnormal in character. The presence of such symptoms as great prostration, necrotic mucous membrane ulcerations, and high fever are important corroboratory findings.

Treatment. The therapy of agranulocytosis is at present multifarious, largely empirical, and probably includes procedures and agents which are not only of doubtful curative value but actually detrimental. Because of the indictment of benzol derivatives as toxins, their use should be avoided in all patients manifesting leucopenia. Mixtures of amidopyrin and barbiturates such as allonal seem especially to be contra-indicated. One of the opium derivatives should be employed to allay pain and restlessness.

Among the most promising methods of treatment is the administration of salts of purine bases, such as adenine* and guanine. Paul Retznikoff,²⁶ in 1930, published an account of the intravenous use of adenine sulphate with favorable results, and in 1933²⁷ he employed it in a series of 15 cases with 11 recoveries.

One gram of adenine sulphate is dissolved by boiling for two or three minutes in 30 to 40 c.c. of normal saline solution, allowed to cool slightly, filtered into a syringe through a small adapter containing cotton, to keep out all undissolved crystals, and injected intravenously while still warm (about 105 to 110 degrees F.). This dose is to be used three times a day for at least three days. It is non-toxic, gives no disagreeable reactions, and may be used in the presence of myocardial disease. Complete solution of the drug may be accomplished, when difficult, by adding a drop or two of dilute hydrochloric acid or increasing the amount of normal saline to 50 c.c.

Jackson and his co-workers^{28,29} used pentose nucleotide† with considerable success in a series of 69 cases of "malignant neutropenia." Pentose nucleotide was introduced as "Nucleotide K96," and is now marketed under the trade name of "Pentnucleotide." It is obtainable in 10 c.c. rubber-stoppered vials, each containing the equivalent of 0.70 grams of the solid material. The dose recommended is one ampoule intramuscularly twice a day until the leucocyte count and granulocyte percentage have risen considerably. This rise usually begins in four or five days, and at the end of about a week one ampoule may be given every twenty-four hours. It is suggested that this regime be continued until the blood count has been approximately normal for at least three consecutive days. Thereafter the frequency of the injections will be determined by what occurs to the blood picture. In certain resistant cases larger amounts of pentose nucleotide have been used. When the need is urgent, 10 c.c. of pentose nucleotide solution may be diluted with 100 c.c. of warm normal saline solution and injected slowly intravenously every morning for four or five days, followed each

evening by 10 c.c. of the undiluted solution intramuscularly. The latter method is then to be continued as long as indicated.

Jackson called attention to the reactions, such as dyspnea and palpitation, which usually follow immediately after intravenous injections, and the occurrence of chills with fever some hours later. He warned against the use of pentose nucleotide in patients with myocardial damage.

Fitz-Hugh and Comroe²⁰ report a reaction of "alarming character" following an injection of pentose nucleotide in one patient, but do not state whether this was given intravenously or intramuscularly. They further state that another patient "reacted violently with fever up to 104.0 degrees with each intramuscular injection, but tolerated the same dose intravenously without reaction." They treated five patients with this drug, all of whom died.

Watkins and Giffin³⁰ used desiccated yellow bone marrow‡ orally with favorable results. The dose recommended by them is from 300 to 500 grains per day, continued until the blood count is approximately normal. After this it is gradually reduced to a maintenance dose of 50 to 75 grains per day, which is continued for one month or longer. Beef yellow bone marrow may be obtained fresh from the Stock Yards and used in doses of approximately one ounce two to four times daily.

Sodium nucleinate has been given orally with benefit. The dose is from one to four drams given one to three times a day. When this is continued over a considerable period of time, symptoms similar to gout have been observed.³²

Transfusions of 500 c.c. of whole blood have been frequently used in the treatment of agranulocytosis with varying success. Fitz-Hugh²⁰ and Taussig³³ are among those who think it of some value, whereas Harkins¹⁸ regards it as useless, and I regard it of very little value therapeutically.

Leucocyte extract given intramuscularly in 10 to 20 c.c. doses, one to three times a day, is thought by some to have a favorable effect.

Foran, Sheaff and Trimmer³⁴ reported remissions in five patients who received liver extract

*Adenine sulphate is obtainable, as a white crystalline powder, put up in glass stoppered bottles of five grams or larger, from The Eastman Kodak Company, Rochester, New York.

†Pentose nucleotide is obtainable from Smith, Kline and French Laboratories of Philadelphia, Pa.

‡Desiccated yellow bone marrow is put up in 3½ grain capsules by Frederick Stearns and Company, Detroit, Mich.

parenterally. § The commercial preparation of the fraction "G" of Cohn was used in doses equivalent to 100 grammes of fresh liver. This was injected intramuscularly, or diluted with 20 c.c. of distilled water and injected intravenously every eight to twelve hours until improvement occurred. After that the same dose and frequency were continued by the oral route.

Exposure of the body to x-ray has been thought by many to be of benefit.^{18,33,35,36} Its use is not without danger, for it may destroy the myelogenetic function of the tissues which it is employed to stimulate. Doan²⁴ especially sounds a note of warning in this respect. X-ray is usually given in one-twentieth erythema doses every other day for three treatments.

Arsenical preparations are rather frequently used because of the common occurrence of Vincent's organisms in the necrotic mucous membrane lesions. Sodium cacodylate in daily doses of from two to ten grains is injected hypodermically, or from 0.45 gm. to 0.60 gm. of neosalvarsan are given intravenously every three days. In the light of our present information it would seem that arsenic should not be employed as a therapeutic agent in agranulocytosis.^{14,15,16,17,18}

Hare and Childrey³⁷ report temporary improvement of an agranulocytic angina occurring in an allergic individual, following daily intravenous injections of one gram of calcium gluconate in 10 c.c. of "solution," presumably water, for four consecutive days.

Yeast has been tried in doses of one to two cakes, one to four times daily.

The production of sterile abscesses in the thigh muscles by the injection of 10 c.c. of turpentine is another method of attempting to stimulate granulopoiesis.

Daily intramuscular injections of from 20 to 50 c.c. of whole blood obtained from patients who have recently recovered from Vincent's infections have been used.

Among the other measures, to be noted merely for completeness, are injections of nuclein solution, reticulín, metaphen, and formic acid.

In addition to the aforementioned specific methods and agents, such general measures as

ample fluids, highly nutritious foods which contain a generous proportion of protein, necessary local treatment of the lesions, nasal feeding for dysphagia, and tracheotomy for respiratory obstruction, are, of course, to be employed.

At present the most successful treatment of agranulocytosis accomplishes a replenishment of the materials necessary to the manufacture of granulocytes in the body. The agents most suitable for this purpose are salts of purine bases, such as adenine and guanine, nucleotide compounds, such as pentose nucleotide, sodium nucleinate, and yellow bone marrow.

In my opinion these substances also act as buffering or toxin-absorbing materials, by interposing themselves in solution between the causative agent of agranulocytosis, which very probably is also in solution, and the granulocytes, thereby deactivating or neutralizing the toxic agent and rendering it harmless to intact living white cells.

Prognosis. The prognosis of agranulocytosis is extremely grave. Before the use of the present therapy the mortality rate was between 80 and 90 per cent. for the first attack. The condition frequently recurred after an interval of weeks or months, nearly always terminating fatally. Various workers show lower death rates with the several therapeutic measures employed. Retznikoff²⁷ in a series of 15 cases and Jackson²⁹ in 69 cases both report a mortality of 26+ per cent.

CONCLUSIONS

1. The cause of agranulocytosis is not known. As a result of the action of the products of infection, leucocoidins, a marked disturbance of granulopoiesis and purine metabolism may occur.

2. Agranulocytosis is recognized with certainty by a low white cell count and the absence of granulocytes in the blood.

3. Effective treatment is, as yet, largely limited to the administration of purines and allied substances

4. Amidopyrin and barbiturates should be avoided in all cases of leucopenia.

5. In the past agranulocytosis has been regarded as an almost inevitably fatal disease, but recent reports give a somewhat more favorable outlook.

636 Church Street.

§Parenteral liver extract is obtainable from The Lederle Laboratories of New York, N. Y., as "Solution of Liver Extract, Parenteral," and is put up in sterile 3 c.c. vials, each containing the equivalent of 100 grams of fresh liver.

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DISCUSSION

Dr. T. C. Galloway, Evanston: Dr. Burcky deserves great credit for his work on agranulocytosis, because he demonstrated the curability of this condition, while most of us were meeting our first cases with a feeling of helpless apprehension.

At that time most treatment seemed ineffectual, but four out of six cases seen in the last two years have recovered under such treatment as Dr. Burcky has outlined. Though laryngologists often see these cases first they are purely medical and so far as I have been able to see local treatment has had no notable value except where special intervention like tracheotomy was necessary.

The lesions have progressed until granulocytes reappeared and necrotic areas quickly separated with relatively rapid healing.

Prostration should be emphasized as an early important symptom, and it has been seen in three of my cases before the local lesion was characteristic,—prostration out of proportion to any appearance in the throat. If we do not make routine blood examinations in anginas at least we must do them when this characteristic great prostration is present.

Diagnosis of agranulocytic angina must not be made too quickly, or too easily, because, as Dr. Jaffe has shown at the County Hospital, this whole group may be hard to classify. It may not be a pure type, and it may be hard to differentiate from other conditions, especially from a leukemia, either by local conditions or by the blood picture.

Dr. H. L. Ford, Champaign: I was especially interested in this presentation in view of the fact that I recently called Dr. Burcky in consultation to see a case of agranulocytic angina, which terminated favorably.

The woman at the time I saw her had a severe adenitis and a provisional diagnosis of peritonsillar abscess had been made. Her blood count was 600 white cells with absolutely no polymorphonuclear cells in the differential. She was removed at once to the hospital, because the condition looked like leukemia.

The diagnosis of agranulocytic angina was made with the differential blood smear. Adenine sulphate and pentnucleotide were ordered. She was given one in-

jection of the latter. And as the adenine sulphate came from the Eastman Kodak Company in a small bottle without instructions from the drugstore, it was left for me to decide how this should be given.

I called Dr. Tom Galloway, (who just finished discussion of the paper) and asked him how this should be administered. Dr. Galloway said, "I am not familiar with the method, but I will put you in touch with a man who can tell you." At that time he was in attendance at a medical meeting, and called Dr. Burcky to the telephone.

Subsequently Dr. Burcky came down in consultation on the case as the question had arisen as to whether blood transfusions should be continued. She had had one the first evening after admission. The next day her blood count as I recall, was about 800 white cells. After going over the literature, I felt no further blood transfusions should be given, but rather that we should reply on the pentnucleotide, and the adenine sulphate.

Long distance telephone calls were put through to two men who were associated with large medical institutions in Chicago. Both men insisted upon blood transfusions as being probably the most important factor.

I should like to add here that to my mind, though men are authorities along certain lines and their word carries a lot of weight, if they do not happen to be up on a particular subject, such as agranulocytic angina, the diagnosis and decision on a thing of this kind should be left to some one who is. Because I think we will all grant there are certain men who are doing research work along special lines, and I think it behooves us in cases of this kind, where the matter is rather urgent to be familiar with those who are in touch with these special lines of recent research.

That is the way it rested in this case, because on study of the literature, blood transfusions and x-ray of the long bones according to many authorities are contraindicated, because one may get a further leukopenia, with the blood transfusion.

Some authorities refer to this as a pernicious leukopenia because of some similarity to pernicious anemia. Another point; in 1891, it was proven that adenine and guanine had the ability to produce a leukocytosis. It was not until 1930 that this application was made in the treatment of agranulocytosis.

As to the reactions from pentnucleotide, this lady had many. After about the fifth or sixth dose she began to develop marked systemic reaction, dyspnea, shortness of breath, rapid, thready pulse. And we had to reply almost entirely on adenine sulphate intravenously.

There is a question as to whether the beneficial pentnucleotide response may not be entirely a response to the adenine sulphate contained in the pentnucleotide.

Dr. Burcky: One must be careful about having any arbitrary ideas concerning the cause of agranulocytosis, because we do not know. Emphasis at the present time is being placed on both amidopyrine and barbiturates, which probably are responsible for some of the cases.

I am sure myself that infection and probably leucocidin are very important as causative factors.

I spent relatively little time on the etiology because I wanted to give you the treatment in considerable detail so that you might know just what to do for this condition.

I have never seen a reaction to adenine sulphate. The nearest approach was an hypernea which occurred about twenty minutes after one injection.

Anemias which are found in this disease are usually secondary. In classification of agranulocytosis I applied the term very loosely to include that large group of cases which we know very little about.

RETINITIS PIGMENTOSA

RICHARD A. PERRITT, M. D.

Junior Staff, Illinois Eye and Ear Infirmary
Dr. T. D. Allen's Service

CHICAGO

Historical: The occurrence of permanent night blindness and the liability to run in families has been known for many years. Overgun¹ in 1744, Samuel Pye² in 1828, Stievenait³ in 1847. Soon after the introduction of the ophthalmoscope in 1851, the cases were separated into those in which retinal changes could be seen and others (a minority) in which the appearance was normal and remained so. The cases in the former class were named retinitis pigmentosa by Donders⁴ in 1857, a misleading term because it suggests that the disease is of inflammatory origin. Leber⁵ in 1871 first described a case of retinitis pigmentosa sine pigmento; Mauthner⁶ in 1872 described a case of choroideremia. Mooren⁷ in 1882 described and named retinitis punctata albescens while Fuchs⁸ in 1896 described and named atrophie gyrata choroidea et retinae. In night blindness without visible changes we find two very different groups: in one the night blindness is present from birth, is permanent, does not progress and is hereditary—congenital stationary night blindness described by Leber in 1877; while the other may set in at any time of life, is temporary, curable and depends upon the exhaustion of a poorly nourished retina by excessive exposure to sunlight, the so-called functional, essential, idiopathic or acute night blindness.

Liebreich,⁹ seeking an explanation of the prevalence of retinitis pigmentosa in certain families, discovered that subjects of the disease were often the children of cousins or blood re-

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lations and his classical paper published in 1861 and illustrated by his Atlas in 1863 did much to stimulate inquiry as to the influence both of consanguinity and heredity in producing the disease. Since that time the literature has been very very extensive, especially on the Continent.

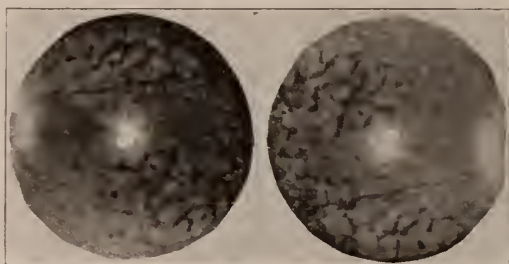
The only branch of medical science wherein the importance of hereditary studies has been fully appreciated and wherein splendid work has been done during the last decade is undoubtedly ophthalmology. None can hesitate to admit that the main incentive towards this great achievement was the inspiration provided by Nettleship,^{10, 11, 12, 13} Usher,^{14, 15} Doyme¹⁶ and Julia Bell¹⁷ in 1922. The first question usually raised when heredity is under discussion is "What influence does consanguinity in the parents or ancestors have?" The issue really resolves itself into this question "Can the marriage of two consanguineous persons cause the transmission of a trait or defect which neither of them possess or does consanguinity operate by increasing the *hazard* of transmission of the same undesirable or desirable trait?" The results of all research in eugenics point to the fact that the outcome of consanguineous union depends entirely upon whether the particular disease or some heritable character is carried by both parents, by only one or by neither. However, Nettleship states that if the transmissible condition be very common there is as much chance of its presence in both of a related as that of an unrelated pair but any comparatively rare disease is more likely to be present in two cousins than in two unrelated persons. In most cases, using Mendelian terms, an hereditary disease is transmitted by the mating of an impure or hybrid dominant (D. R.) with a recessive one (R. R.) and if sufficiently large numbers are taken, and it seems that individuals affected by hereditary imperfections and diseases are very often members of large families, half of the resulting offsprings should be normal and half diseased whether the disease be the dominant or recessive partner. It is thought that representatives of hereditary diseases must often be far less ancient in origin than those representing normal characters and therefore presumably more readily modified by disturbing embryonic influences. Anticipation, or the manifestation of a morbid change at an earlier age in each

successor or in each succeeding generation deserves much more attention especially in its relationship to the origin and extinction of hereditary diseases. This is a marked feature in hereditary glaucoma and Leber's disease. It is not a feature in retinitis pigmentosa. In families in which only a single example of the disease can be discovered, the disease may have existed in a latent form in several members but become manifest by some actuating illness, disease or toxemia. Nettleship's story in which the disease followed scarlet fever in five children in one family is most significant. In other discontinuous pedigrees there may be some other morbid state that affects an entirely different portion of the body—i.e., an hereditary equivalent.

Pathogenic Theories: There have been many recent pathogenic theories advanced. The liver dysfunction theory of Verhoeff¹⁸ and Takahashi¹⁹ the angio-spastic theory of Corrado,²⁰ vitamin deficiency theory of Levine,²¹ the hypophysodiencephalic disturbance of Zondek,²² of the ductless gland theory of Jones,^{23, 24} the association of the vegetative nervous system by Yolin and Bedskiy,²⁵ the nutritional disturbance of Simson,²⁶ familial choroidal sclerosis by Cridland,²⁷ its relationship to familial amaurotic iodocy and Laurence-Biedl syndrome by Gianini²⁸ and by McCrae²⁹ and Weiss, its combination with Fröhlich's syndrome by Ricaldoni³⁰ and Isola, the abnormal course of the long ciliary arteries by Ehlers³¹ or Crampton's³² anomalous disturbance of retinal vessels all serve to illustrate the markedly divergent views and still they all tend to show their inter-relationship with each other. Treacher Collins,³³ in his revolutionary paper believes that the process is one of primary degeneration of the neuro-epithelium resulting from a congenital lack of vitality—an abiotrophy and later an atrophy of the nerve fibers and an increase in the fibrous tissue elements. Verhoeff and Friedenwald³⁴ agree that the process is primarily a degeneration of the neuro-epithelium. This theory of abiotrophy is rapidly gaining momentum.

Symptoms: The three classical symptoms of retinitis pigmentosa which are generally diagnostic but not invariably present are night blindness, contraction of the visual fields and visible

pigmentation of the retina. Other characteristics are the slow progression towards complete blindness about middle age with the retention of comparatively good central vision even in the late stages. The disease is usually bilateral al-



R. L.

Fig. 1. Fundus Photographs.

Fig. 1. The pictures of oculi fundi were taken by Dr. Wm. A. Mann, Jr., of Chicago.

though several authors^{35, 36} have reported the disease in one eye only. Doyme¹⁰ has unfolded other less recognized symptoms; the persistence of images and the preference for artificial light especially in far advanced cases. He also describes a zone of greyish infiltration immediately inside the main pigmentary zone and the fine layer of clouded vitreous lying immediately anterior to the retina. The fundus picture is very characteristic. The visible deposits of pigment having migrated from the pigment epithelium

into the internal layers of the retina, collect chiefly along the blood vessels; when these branch a typical deposit is formed which has been likened to a bone-like corpuscle or to a fine web-like dispersion. Because of this migration the choroidal vessels become plainly visible, giving a tessellated appearance to the fundus. Cases are recorded in which the fields are contracted to the fixation point with defects of central vision without any visible pigment—retinitis pigmentosa sine pigmento.³⁷ However, more cases are described in which no pigment is seen on first examination but during the later stages³⁸ the usual deposition is seen. The determination of the exact form of the visual fields is difficult due to the varying results obtained at different times and under different lighting effects. Most authors now report a concentric contraction of the fields with ring scotomata being the usual rather than the unusual finding.

The information as to the age of the onset of the disease, the rate of progression and the age at which blindness occurs is very vague. From the examination of all possible reports the onset is at a very early age, in the majority of cases and is a rare occurrence after the age of twenty. Muncaster of Washington, D. C., in a discussion of Friedenwald's paper reports a girl aged eight

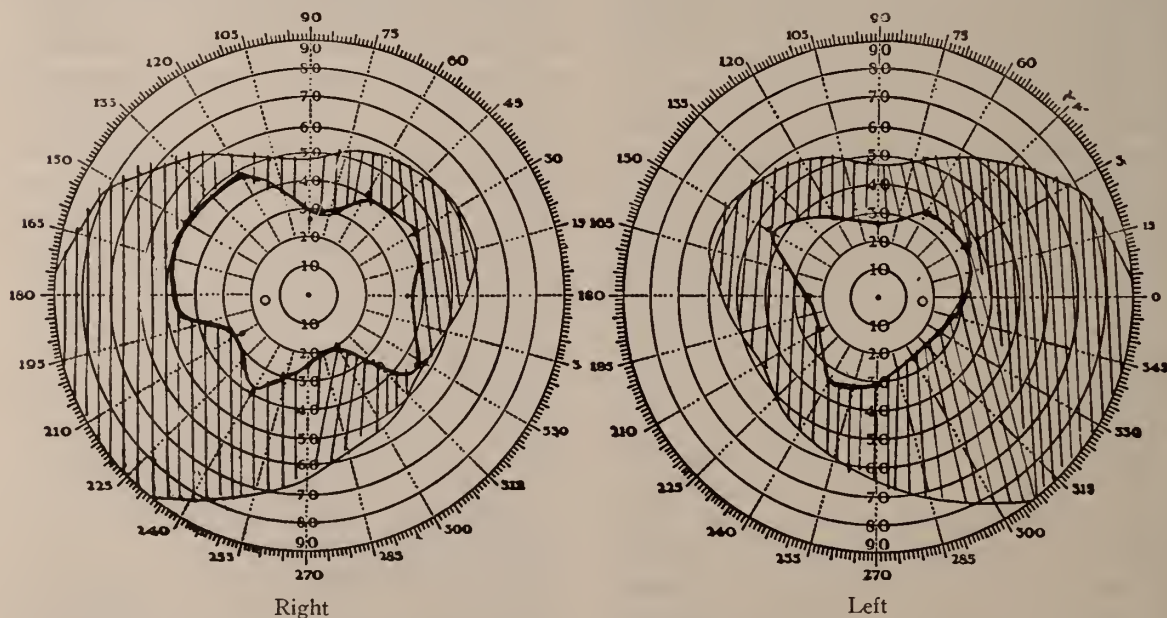


Fig. 2.

Fig. 2. Name—Miss R. B. Date—March 26, 1934. Radius of Perimeter 26 cm. Illumination—Daylight, overcast day. Test Object—5 mm. White. Co-operation—Good.

with the disease. The accepted opinion now is that industrial blindness usually occurs at about middle-age. As to associated hereditary diseases we may conclude that retinitis pigmentosa occurs as a single affection seldom accompanied by other disabilities.^{39, 40, 41, 42, 43}

Therapy: A variety of therapeutic measures have recently been advocated showing the marked and widely divergent methods of treatment. The liver therapy possibility of Carsten,⁴³ the cod liver therapy by Levine and by Santan-

lectomy reported by Meighan⁵² and also by Campbell,⁵³ and lately by DeTakats.

W. H. Wilmer⁵⁴ in 1924 asks this question about hereditary factors in the development of retinitis pigmentosa: "After all is said and done, the question arises: 'How are these hereditary lesions to be prevented?'" The most important step seems to be the realization of these conditions by the medical profession, and through them and students of genetics and eugenics, the education of the public in regard to marriage and the hereditary dangers. Clarence Loeb,⁵⁵ thinking along the same lines, sent a form letter to 1,750 prominent ophthalmologists and superintendents of institutions for the blind asking them for their opinions. The following men have intimated by their answers that some system of classification must be evolved so that their answers might not just be termed "opinions." Prof. Axenfeld, Dr. A. Barkan, San Francisco, Dr. Ewing of Richmond, Va., Dr. H. Gifford, Omaha, Dr. Allen Greenwood, Boston, Dr. Robert Loring Boston, Dr. Casey Wood, Chicago, Dr. Wm. Posey, Philadelphia, Dr. A. Ewing, St. Louis.

Dr. L. Herbert Lanier,⁵⁶ writing along the same vein states "Of 29,242 blind persons interviewed for the government over 20% or more than one-fifth stated that their own blindness was due to congenital causes the nature of which was not indicated, as compared with a corresponding percentage of only 4 for those who reported none of their brothers or sisters as blind." Ophthalmologists have been stimulated by periodic articles on this phase ever since the time of Nettleship who, realizing the need for collecting and classifying all available information pertaining to the inheritance of eye disease, compiled his exhaustive study "On Some Hereditary Diseases of the Eye."¹¹ Therefore, from the foregoing data illustrating the many and variable hereditary factors and truthfully realizing the futility of all our temporary therapeutic measures should we not contribute our mite to posterity and with the aid of our state, county and city medical societies decree that ophthalmologists report to the Department of Statistics all cases of ophthalmic disease which are definitely and unequivocally hereditary. This classification would then be used as a sound basis for determining whether or not the propagation of

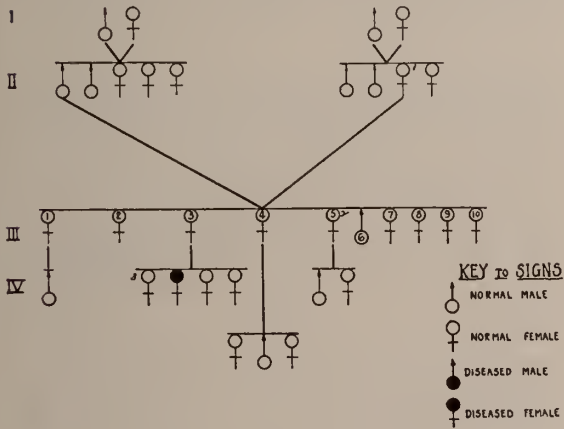


Chart 1. Genealogic Table.

CHART 1

1. Katherine S., grandmother of the affected child, had ten living children. Fundus examination revealed a circumscribed area of atrophy about 1 cm. in diameter in the infero-medial portion of the retina of the left eye. The right fundus revealed fine dust-like pigment at 7 o'clock about 2 disc diameters from the optic nerve.
2. Catherine Q. Aunt of child. Fundus examination revealed an anomalous deposition of pigment about 1 cm. in diameter at the first forking of the superior nasal vein.
3. Lavergne B., three-year-old sister of child. Mitten-dorf Dot of right eye.

owsky,⁴⁴ the organo-therapy and anti-syphilitic treatment by Hilgartner and Lankford,⁴⁵ Roentgen ray therapy by Merkulow and Schich,⁴⁶ the eyeball massage therapy advocated by Wurde-mann,⁴⁷ the sodium cacodylate treatment of Muncaster,³⁴ the acetyl-choline therapy by Cor-rado,²⁰ trephining by Mayon,⁴⁸ the treatment with menformon (female sex hormone) by Wi-baut,⁴⁹ the ferronovin and hepatopson treatment of Ruge,⁵⁰ the use of amyl nitrite inhalation and nitroglycerine internally based on its dilatative effects on the retinal and choroidal vessels, the use of convex-concave lens by Ronne⁵¹ and finally the most recent treatment of cervical sympa-

these diseases should be curtailed either by precept or by law. *In conclusion let us remember to treat is the word of the past; to prevent is the word of the present.*

REPORT OF A CASE IN A 6-YEAR-OLD GIRL

Miss Rose B. was the third born of four children. Before birth several types of abortifacient drugs had been used. At term her birth weight was $51\frac{1}{2}$ pounds. She was breast fed for one month, never being considered a robust child. When but one year of age she developed a peritonsillar abscess; at the age of four, measles and at five whooping cough.

At this time, when five years of age the child would never remain out of doors at dusk because she would fall over people and objects. She attended another of our large clinics in this city, was refracted and a general physical examination given. Not being satisfied with the glasses, the child refused to wear them. The teacher notified the child's mother of the inability of the patient to see the blackboard whereupon she entered the Illinois Eye and Ear Infirmary. She was first seen by me in July, 1933. At this time she was poorly nourished and poorly developed, very pale and of a very dark complexion. She was very backward in her school studies. She is 3 feet, 8 inches in height, and weighs 38 pounds. A general physical examination otherwise proved that she was organically and mentally sound. Bone development was normal. Her hair was dark brown. Her eyes, R. V. 10/200, L. V. 10/200. She was refracted under atropine and R. V. -6.50 cyl. -2.50 ax₁₅, = 20/65. L. V. -4.50 cyl. -1.75 ax₁₆₅ = 20/65. The corneae were clear. Anterior chambers of normal depth. Pupils were equal and reacted to light and accommodation. Irides dark brown. The media fairly clear, there being a slight lenticular posterior cortical haze. No pigmented areas on the sclera. Fundoscopically there was a dispersion of fine cob-web like pigment at the periphery and especially marked at the equatorial regions. This encroached centrally to within 15-20 degrees of the optic disc. The extreme periphery was relatively clear. The maculas were spared. The above correction is worn and is well tolerated.

LABORATORY FINDINGS

	Child	Mother	Father
Blood Wasserman	Neg.	Neg.	Neg.
Blood Sugar	96.1 mg.		
N. P. N.	25.2 mg.		
Uric Acid	3.0 mg.		
Basal Metabolism	+4		
X-ray Sella Turcica.....	Normal		
Urine Analysis	Normal		
Blood Count	90% Talquist		
R. B. C.	4,712,000		
W. B. C.	7,300		
Polym.	59%		
Lymph.	32%		
Mon.	9%		

Peripheral Fields are attached herewith. Central fields were attempted but due to the questionable co-operation, the results are not included.

The child is still under my observation; there has

been no appreciable change in the fundoscopic picture, and is now attending a sight saving class.

A thorough search has been made of the fundi of all related persons—about 40—but no pathology could be found nor did I find any hereditary equivalents.

30 North Michigan Ave.

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DISCUSSION

Dr. Leo Mayer, Chicago: In addition to hearing Dr. Perritt's excellent abstract of his paper, I have had the privilege of reading the entire paper and I want to take this opportunity to congratulate him on this contribution. Dr. Perritt has taken a single case and developed out of it a contribution, the like of which has not been found in the literature since the epoch-making contribution of Nettleship, which established this English author as one of the outstanding ophthalmologic investigators. It is our hope that because of this initial maiden contribution which is of such high caliber we may anticipate further work of this character from Dr. Perritt in the future. I have little to add except to stress two or three points.

As Dr. Perritt said, in 1915 Mayou used corneoscleral trephining in the treatment, the idea being that this condition was due to some fundamental process which caused a decrease in the metabolism of the

fundus. In 1929 Hepburn advanced the thought that retinal impairment might be at the base of the condition. This contribution was the one which induced Royle to bring forth in 1932 the idea of cervical sympathectomy, in this way decreasing the effect of the sympathetic action on the vessels which go to the head and allowing the supply of blood to the retinal tree to be increased. He opined at this time that this procedure causes a permanent and definite increase in the caliber of the retinal arteries, and he was very enthusiastic about the possibilities of this type of treatment. He also brought out the fact that the condition of retinitis pigmentosa must necessarily be diagnosed as early as possible in order that increased vascularity could be attempted.

De Takats, at Northwestern University Medical School, has operated on eight cases up to the present time with this procedure. I am sure that when his report is published we can look forward to it with some enthusiasm because of what he has told me of his work. Such operations have also been done by Wheeler in New York and other men in various parts of the country.

The enthusiastic report of Wibaut, on the use of menformon, is very interesting. He has assumed the premise that the female sex hormone is the factor lacking in the transmission of this sexlinked disease. This is comparable to the idea which has been advanced in the condition known as hemophilia. About four years ago, Dr. Luedde of St. Louis used retinal pigment emulsion for the treatment of retinitis pigmentosa. The idea was that the retinal pigment contained some factor of an immunological type which would prevent the retinal pigment from advancing into the outer layers of the retina. Dr. Luedde was kind enough to supply me with some of this emulsion, and at the meeting of the American College of Surgeons in St. Louis he made a brief report upon its use. It is very interesting to comment concerning the measurement of the visual fields of individuals under this treatment. Little islands appear in the periphery of the retina, which may have been there before, but certainly escaped notice. Also, in this condition, I have had occasion to find that even without any type of treatment these islands appear and disappear. Whether it is a question of poor technic or whether there is an actual change in the sensibility of the retina is difficult to answer. But I should caution anyone who deals with these cases to be careful about the appearance of these islands, which would seem to show an increase in the size of the visual field, when they are only temporary changes.

The question of eugenics and the genetic side of this problem appear to assume some importance of late. In some states they have instituted certain hygienic laws to prevent the propagation of hereditary disease. This same question is now being discussed frequently in the German literature. Necessarily, it behooves us to study this condition and decide what attitude should be taken concerning the sterilization of individuals transmitting retinitis pigmentosa.

Dr. H. E. Middleton, Alton: I have listened with

interest to this discussion. I would like to report a case which was seen last summer, in July, a young woman of 15 with night blindness and diminished vision. The best vision obtainable was R. E. 20/100, L. E. 20/40. The fields were markedly contracted, and there was typical spider-web pigment distribution. Her father was wearing a very high correction, the best vision obtained being 20/20-1. There was a history of defective eyes of various vague kinds in the family history, and in one uncle, they thought, there was night blindness. I had refracted this girl three years previously and obtained 20/20-1 vision, with correction.

I live within twenty miles of Dr. William Luedde, and have known of his work with choroidal pigment emulsion using injections subcutaneously. He was glad to see the case and started on pigment injections. The case came back in about a month with improvement of the fields and increase in vision. She reads 20/20 shortly after the injection of the pigment, and then it gradually decreases until another injection is given. It is just about enough to hold her for about a week. He admits that his work is experimental but he has several cases with good results. The tests of visual acuity and the examination of the perimetric fields is after all a subjective one. It depends upon the reaction of the patient, and I am doubtful at times as to the accuracy of the test of reading letters.

Dr. Richard A. Perritt, Chicago: I have nothing to add, except that I wish to thank the men who have discussed the paper.

A MODIFIED TECHNIQUE FOR SUSPECTED GALL BLADDER DISEASE

ADOLPH HARTUNG, M.D.

AND

T. J. WACHOWSKI, M.D.

CHICAGO

The roentgen diagnosis of gall bladder disease at the present time is based almost entirely upon information derived from the cholecystographic method of examination. It is generally recognized that the findings disclosed by it are far more extensive and accurate than those obtained by the so-called direct and indirect methods in use prior to its introduction by Graham-Cole in 1923. Nevertheless errors in diagnosis based upon it occur with sufficient frequency to justify doubts of its absolute reliability. Improvements in technique and better interpretation gained by experience have resulted in increased accuracy but enough fallacies remain to warrant further study and experimentation to eliminate them or

reduce them to a minimum. With a view towards ascertaining whether a cholecystographic examination combined with an opaque meal roentgen examination might result in a reduction of the percentage of errors in diagnosis we subjected all patients referred to us during the past year at the University of Illinois Research Hospital for suspected gall bladder lesions to such an examination. This paper is based upon 63 of these cases which were subsequently operated on at our institution and where we were able to correlate the roentgen and operative findings.

Before describing our method and discussing the results obtained with it, a brief resume of the methods commonly used, together with their limitations and chief sources of error, may serve to show why a combined method such as we are using may lead to greater accuracy in diagnosis.

The direct method of roentgen examination constituted the earliest attempts to utilize roentgen rays for gall bladder diagnosis. Positive findings were and are still considered of definite value. They consist of visualization of gall stones or of a gall bladder shadow on the plain film. Failure to show such shadows is generally regarded as having little or no significance. The possibility of showing gall stones is directly proportional to the amount of lime salts they contain and the care used in attempting to show them. Various operators reported positive results in from 5 to 90 per cent. of cases examined. Definite ring shadows, especially when multiple and faceted, are almost pathognomonic. Comparatively little value should be placed on doubtful shadows except perhaps as suggestive evidence indicating the need for cholecystographic study. As regards visibility of the gall-bladder on the plain film, there is considerable controversy as to the value which may be attached to this finding. It has been shown repeatedly by the dye test that shadows supposedly representing that organ have no relation to it. That the normal gall bladder may cast a shadow under especially favorable conditions has also been demonstrated. The contention that visibility always implies pathology has not been definitely established. Abnormal visibility may occasionally explain a persistent faint gall bladder shadow seen after cholecystography which fails to contract after the fat meal.

The indirect method of examination is based

upon secondary signs observed in connection with an opaque meal roentgen examination of the gastrointestinal tract. Considerable importance was attached to it prior to the use of the Graham-Cole test and much of the information to be derived from it may be utilized to advantage even now in connection with other methods in use, especially in doubtful cases. Pericholecystitic adhesions, credited with producing dextroposition or hepatofixation of the pyloric end of the stomach or parts of the duodenum, or abnormal fixation of the hepatic flexure of the colon, were usually regarded as of major significance for the findings noted. Operative check-ups frequently contradicted the deductions drawn but confirmation was noted with sufficient frequency to warrant using the method as an adjunct to others. Smithies¹ made a study of 1,000 cases of surgically demonstrated instances of gall bladder disease from the Mayo Clinic and found 48.9 per cent. associated with adhesions to adjacent structures. Only 22.8 per cent. of these involved the duodenum and 10.4 per cent. the stomach but it is quite likely that many of the others might conceivably be responsible for roentgen signs similar to those produced by direct attachment. Compression of the duodenal cap or pyloric end of the stomach by a pathologic gall bladder producing a so-called "seat" was likewise found to be of value in some cases even if it was not found to constitute infallible evidence of such disease. Functional disturbances in the form of hypermotility or stasis, hyperperistalsis or spasm or irregular peristalsis resulting in to-and-fro movements in the duodenum, were frequently found associated with gall bladder lesions. They were however common accompaniments of other lesions but as the examination could furnish evidences of such lesions their presence, where no other explanation was demonstrable, furnished corroborative proof of considerable value.

The introduction of cholecystography marked a notable advance in the roentgen demonstration of gall bladder pathology. As is well known, it is a functional test depending upon the fact that tetraiodophenolphthalein compounds administered orally or intravenously are excreted normally with the bile and concentrated with it in the gall bladder to a degree producing sufficient radio-opacity to cast distinct shadows on the Roentgen film. Normal evacuation of the gall

bladder in response to various stimuli was also demonstrable with it. Variations from the normal in the form of non-visualization, faint visualization, abnormalities of form, contour and position and abnormalities of emptying serve as a basis for the inferential diagnosis of gall bladder disease. In addition, stones of a non-opaque character otherwise invisible and even small tumorous masses might be recognized as negative shadows surrounded by the dye containing bile. In some cases of positive stone shadows, especially those of a doubtful nature, the test occasionally was of value in determining their nature. It soon became apparent that none of the findings disclosed by this method pointing to either a normal or pathologic gall bladder were infallible and this conclusion is generally admitted even at the present time. Particular techniques are credited with greater accuracy and check-up examinations in cases with doubtful findings unquestionably reduce the percentage of errors.

Normal visualization may occur if enough normal mucosa be present to produce the usual response in spite of the fact that the remaining parts may be sufficiently diseased to produce marked clinical manifestations. It is also conceivable that a gall bladder may recover from an attack of cholecystitis with more or less complete return to normal, at least functionally, but that sufficient pericholecystic adhesions may have formed to cause symptoms of which the patient complains. This is demonstrated by the fact that cases in which gall bladder drainage has been done, subsequently may show normal cholecystograms, as was the case in 2 cases we examined recently. One other factor which must be taken into consideration, is individual functional variation of unknown origin. It is hardly likely that the gall bladder differs from other organs where we know such variations exist and that the average time chosen after the dye administration is the optimum one for presenting the information wanted in that particular case. All of the facts available at the present time demonstrate that absolute reliability cannot be attached to most of the information which may be derived from cholecystography.

Statistical evidence recorded in the literature shows considerable variation as regards reliability. Moore², in a series of 416 cases which came

to operation where non-visualization was noted on the cholecystogram, records confirmation in 100 per cent. and in 167 cases with faint shadows in 98.2 per cent. Ferguson & Palmer³ report non-visualization with positive clinical findings having proved accurate in 90 per cent. of cases operatively; on the other hand, faint visualization with positive clinical history yielded only 58.3 per cent. confirmed findings and where the history was merely suggestive only 14 per cent. Cases of good visualization without stones which came to operation for some other reason or other were found to be 98 per cent. correct. Fleming⁴ states that 88.2 per cent. of operatively confirmed cases of gall bladder disease were revealed by abnormal cholecystographic responses but in 11.7 per cent. of cases where gall bladder pathology was found operatively normal gall bladder function as evidenced by the dye test was present. Graham⁵ cites statistics of different authors which average 97.8 per cent. correct diagnosis in 446 cases of pathologic gall bladder and 74 per cent. in 115 cases with normal gall bladder. 147 cases of his own yielded correct findings in 97.28 per cent. Eusterman⁶ states that a negative cholecystographic response, i. e., a normal gall bladder shadow, is the least reliable of all signs and this opinion gains added weight when consideration is given to the fact that comparatively few cases of this kind come to operation for confirmation. Whitaker⁷ considers absence of shadows one of the most certain indications of abnormality and most observers appear to be of this same opinion. As regards gall stones, it is generally regarded that where they are demonstrated either as positive or negative shadows in connection with cholecystography, operation confirms them in almost 100 per cent.; absence of such shadows where operation reveals their presence is comparatively common so that no very definite reliance can be placed on this finding.

Following the introduction of the dye test, there was considerable discussion as to the relative advantages of this test over the direct and indirect methods of examinations formerly in use. Case⁸, in common with many other workers who had had extensive experience with both methods, held that the former was clearly more reliable and informative but stated that he considered certain secondary signs still valid, as strongly suggestive of gall bladder disease. Oak-

man⁹ in 1928 in an article on the correlation of cholecystography and the barium meal reports that in a series of 37 cases examined by the cholecystographic method, in 97.3 per cent. of them operation confirmed the roentgen diagnosis, whereas in 70 cases previously reported operation revealed a correct diagnosis in only 53 per cent. based on findings obtained by the direct and indirect examination methods. He adds however that in 143 cases where a normal cholecystographic response was obtained and no operation performed some showed indirect signs and that probably a portion of them actually had gall bladder disease. He mentions the possibility that a further study of indirect signs in connection with cholecystography and surgery might enable us to cut down the percentage of missed pathology and if so it would be worth while.

From the data presented, it would appear that cholecystography justifiably forms the mainstay of the roentgenological diagnosis of gall bladder disease. Nevertheless apparent contradictions between the clinical manifestations and conclusions reached on the basis of findings suggested by the dye test would seem to indicate that additional examinations are advantageous to render the roentgen findings more reliable. A preliminary direct examination might obviate the necessity for a cholecystographic study by showing unmistakable gall stone shadows. In the case of doubtful shadows the dye test might be of differential value. If an apparent gall bladder shadow were noted on such an examination suggestive of pathology, cholecystographic confirmation would be advisable and the findings might be valuable to distinguish such a shadow from faint visualization due to disease. The indirect method with its so-called secondary signs may serve to confirm the findings obtained by the other methods especially if they are of questionable nature. A combination of these methods not only gives all the information which any one of them alone can give but permits of checking the findings of each one against the other, which is bound to make for greater accuracy.

It is more than likely that each one of the methods named is used in connection with individual cases by most roentgenologists. The only claim we make for our method is that it has advantages as a routine procedure, that it is adapted especially for ambulatory cases to give the maxi-

imum information in the shortest time with a minimum of expense and in the case of hospitalized patients shortens the time necessary for making a diagnosis as far as the roentgen examination is concerned.

The actual procedure followed in connection with the 63 cases which form the basis of this article was as follows: In most of these cases the dye was administered orally and the patients were first seen by us after its administration. This precluded making preliminary films from which direct signs might be obtained. We feel however that this is of sufficient importance so that we intend doing it in future whenever possible. 14 hours after the oral or 6 hours after intravenous administration of the dye films were made and developed immediately. If they were satisfactory and showed a good gall bladder outline of approximately normal density the patient was given a meal consisting of egg yolks and cream. Otherwise additional films were made after an interval before the fat meal was administered. One hour after the fat meal, films were made to show contraction or other findings which might be of value. An opaque meal was then given under fluoroscopic control and special attention given to possible secondary signs. Subsequent examinations were made in individual cases where it was thought additional information might be obtained thereby. A written report was then incorporated with the history of the patient and if the patient came to operation this was compared with the surgeon's findings. No attempt was made to ascertain the exact nature of the pathology present when pathologic gall bladder was reported. Special stress was placed upon adhesions or other findings which might explain the roentgen signs observed. Of these, evidences of abnormal fixation, gall-bladder "seats" and functional disturbances were recorded although note was made if other abnormalities were present.

For purposes of study the cases are divided into 4 groups. Group 1, consisting of 8 cases, comprised those showing positive stone shadows. In all of these there was non-visualization of the gall bladder by the dye and all of them presented secondary signs in connection with the opaque meal. At operation stones were found in all of them but in 2 no evidences of adhesions were noted although our report suggested abnormal

fixation. Group 2 was made up of 27 cases in whom non-visualization was the predominant finding. In these operation revealed stones or gall bladder pathology in 26 and stone in the common duct in one of them. Adhesions were found operatively in one case where no secondary signs pointing to them were noted and in two, none were present although evidences of them were noted roentgenologically. In Group 3 with 7 cases visualization was noted with non-opaque stone shadows. Operation disclosed stones in all of them but in only four were adhesions found which might account for the apparent secondary signs noted roentgenologically.

These 3 groups represent cases in which cholecystographic findings are generally considered adequate and reliable and they proved to be so in our series, showing 100 per cent. confirmation. As regards secondary signs, based solely upon adhesions noted operatively, there was a discrepancy of 25 per cent. in Group 1, 11 per cent. in Group 2 and 43 per cent. in Group 3 or an average of 26 per cent. in the 3 groups. No secondary signs were noted in 5 of the 43 cases in these 3 groups making an absolute discrepancy of about 12 per cent. in the findings.

Group 4 was made up of 21 cases where visualization occurred. In 9 of them it was considered normal, in 6 faint, and 6 showed some abnormality of shape, contour or location. 18 of them showed definite contraction after the fat meal. In one there was none and in two others it was questionable. At operation, stones or gall bladder pathology was found in 19, one was negative and one questionable. Five of them showed no adhesions but secondary signs suggestive of them were recorded on the basis of the opaque meal examination. In this group at least 50 per cent. would probably have been reported negative on the basis of the cholecystographic findings alone. Actually all of them were reported as showing findings suggestive of a pathologic gall bladder or findings consistent with a previous attack of cholecystitis with adhesions. From these findings it would appear that faulty diagnoses were made in about 10 per cent. of these cases as compared to a probable 50 per cent. if reliance had been placed only upon the findings obtained by the dye test. As regards adhesions to account for the secondary signs a

discrepancy of about 24 per cent. was present.

In reviewing the entire 63 cases from the surgical findings and roentgenological signs obtained by the combined method it would appear that correct diagnoses were arrived at in over 96 per cent. of the cases. In 42 of them probably the same conclusions would have been reached from the cholecystographic examination alone. In the other 21, secondary signs elicited from the opaque meal examination prevented errors in diagnosis in almost half of them which would have been made if the findings obtained from the dye test had been the sole criteria. It is interesting to note that 12 of the 63 cases were originally referred for gastrointestinal examination because of the clinical history and most of these were subsequently examined for possible gall bladder pathology on the strength of secondary signs noted which suggested the advisability of obtaining additional information.

Although the series studied is too small to be very convincing it would seem to justify the following conclusions:

A combined method of study such as described is of value in all cases of suspected gall bladder disease if for no other reason than to check findings against each other for corroborative purposes.

It is particularly valuable where findings obtained by cholecystography alone are questionable or at variance with the clinical manifestations.

It may prevent errors in diagnosis which would occur in some cases if the evidence presented by the dye test were relied upon exclusively.

It is applicable in cases where the dye test is of questionable value as for instance in the presence of jaundice.

It permits of the demonstration of pathology other than of the gall bladder which may be present simultaneously or which may be responsible for symptoms simulating those of gall bladder disease, without subjecting the patient to a separate examination.

It gives a maximum of information with a minimum expenditure of time, energy and money compatible with accuracy of diagnosis.

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DISCUSSION

Dr. David Beilin, Chicago: Unfortunately, I did not have a copy of Dr. Hartung's paper and, therefore, did not have an opportunity to carefully evaluate his paper.

Undoubtedly, a great deal of information may be obtained by the combined method of examination. There is no question that in many cases a barium meal examination may elicit some valuable information at the pylorus and duodenum which may be of help in making a differential diagnosis.

On the whole, I believe that cholecystography is a very accurate examination as is evidenced by the fact that the radiologist's roentgen diagnosis check with the surgical findings, in from 95 to 98 per cent of the cases.

I personally feel that the average radiologist should not be a faddist. It is all right to improve one's technic. If a surgeon were to change his technic or the management of an examination every time he heard something new, he would not get very far. Most of the practical surgeons usually try to master one technic, find out as many fallacies in the technic of the operation as possible, and profit by past experience, for, after all, hindthought is always more constructive than forethought. That does not mean I disagree with what Dr. Hartung has to say about his combined method of examination. I am sure most of us have done numerous combined examinations but not routinely.

I personally feel that an examination, where one can get from 95 to 98 per cent accuracy in roentgenologic diagnosis that will check up with surgical findings, is accurate enough, because the pathological manifestations are often such that it does not allow any further accuracy by any type of an examination.

I reported about 750 cases in the year 1930 at Los Angeles, in one of our radiological meetings. I at that time presented an exhaustive survey on the pathological gall-bladder as checked by surgery, and I believe that our statistics at that time (the statistics were compiled by interns, surgical resident, and resident in the radiological department) seemed to check with the accuracy and diagnosis at most large clinics, running somewhere around 95 to 98 per cent.

I think one ought to hesitate about being very definite

in telling the surgeon that there are adhesions about the gall bladder. In the early years of cholecystography, I used to state very often that, if I saw what looked like a persistent irregularity in a gall bladder outline, and particularly if the shape of the gall bladder was the same after the meal as before, there undoubtedly were pericholecystic adhesions, but after seeing hundreds of abdominal operations in patients who had had cholecystographic studies, and seeing that the gall bladder was not bound down, I became more cautious in making that statement.

However, if one sees a well defined deformity which remains deformed in approximately the same shape when a roentgenogram is taken in the posterior-anterior and the anterior-posterior views, and after a meal, say, (fifteen or twenty minutes after a meal) so the entire gall bladder does not empty out its contents, and you see a persistent, similar deformity, you can be safe in saying there are pericholecystic adhesions.

In regard to the gall bladder seat sign, I believe Ariel George spoke a great deal about this sign, and John Camp, at Mayo's did some work on trying to evaluate this sign. Camp found in a large number of instances that the deformity was produced by the lobe of the liver. I don't think that one can rely conclusively on the seat sign as being a gall-bladder shadow.

I do think that by the combined examination, from a clinical-roentgenological standpoint, if one has cholecystographic studies, with a complete examination of the gastro-intestinal tract, in order to exclude organic disease of the stomach, pylorus and duodenum, as well as the head of the pancreas, and if one has excluded disease of the genitourinary tract, and if one finds an absence of the gall bladder shadow following the administration of the dye, one can say with great assurance that the patient has cholecystic disease.

Dr. Adolph Hartung, Chicago: I want to state that some of the things that have been brought out by Dr. Beilin have been answered at considerable length in the paper itself. However, I do want to make these points: first of all, cholecystographic findings are accurate where we get definite findings of either stones or non-visualization with proper technique. That is quite general knowledge.

Where, however, we get an apparently normal visualization with clinical manifestations pointing to gall-bladder disease, if we are going to rely upon our roentgenological findings alone, as derived from the dye test we are going to make a faulty diagnosis. That is exactly the type of case in which this combined examination is going to help us out. So that we do it routinely, because we do not know which is going to show us this, that or the other finding, but after the second set of films has been made, we make this opaque meal examination as a routine, if for no other reason than for corroboration. Frequently we do not need it, but if we do it oftentimes is of great value, as this series of cases demonstrated.

X-RAYS AND HEALTH

HARRY A. OLIN, M.D.

CHICAGO

Perhaps no subject in medicine is more entertaining or interesting than the field pertaining to x-ray. Its value is common knowledge to all doctors and yet, to most us, it is surrounded by a veil of mystery. Its birth is enshrouded in what properly can be termed the romance of medicine. When newspapers, in 1895, first printed the photographs of bones of living human beings, people little realized that the discoverer, Wilhelm Conrad Roentgen, gave to the world one of the most important and essential agents in the practice of medicine. This new method of actually seeing broken bones and the location of bullets was an amazing and progressive step in modern medicine; it injected real science into the practice of medicine and insured accuracy to accomplish the best results. It substituted honest judgment of fact for guess work, and quicker, better care and earlier relief of pain and discomfort for the injured person. Many people still hold the belief that the uses of x-ray are confined to broken bones and the location of bullets, but the science of x-ray has advanced far beyond the standards of 1895. The standards of 1895, today, serve only as a foundation in this comparatively new field of medicine. Today, not only can broken bones and bullets be subjected to x-ray examination but also all parts of the human body. In addition, with the aid of special substances, many internal organs can be studied and their diseases recognized by means of the x-ray.

The stomach and intestines are hollow organs which normally are not seen on an x-ray film but, by giving a special liquid meal, containing the purified chemical, barium sulphate, in water, buttermilk or any other suitable fluid, the contour, size, shape, etc., of the stomach and intestines are seen as shadows which conform to the outline of the organs. In the dark room these shadows are projected on a fluorescent cardboard called the fluoroscopic screen and in this manner the organs can be studied and their function investigated in the living person. The study of the heart and lungs requires no special method

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since the heart as a solid organ filled with blood, casts a dark shadow against the lungs which are hollow organs filled with air and which the x-ray penetrates as light shadows. The rhythmic movements of the solid organ, or heart, contracting and expanding can be readily observed in the *light* fields which are the lungs. Likewise, the expansion and contraction of the lungs may be studied and the excursion of the diaphragms may be seen during the alternate phases of breathing—expiration and inspiration. Changes in contour, size, shape and shadows foreign or abnormal to the organ are readily detected.

Certain substances, when injected into the blood stream, excrete these chemicals by the route of definite organs as the gall bladder and kidneys and by casting shadows, these organs can be visualized in this manner. The gall bladder may also be visualized by adding a chemical to the meal in addition to the method of injecting the chemical into a vein. Special methods are now in use where inert chemicals which cast heavy shadows and are impervious to the x-ray beam can outline body cavities and sinus tracts, the latter frequently occurring in chronic inflammation, as the chronic diseases of the bones and chronic wounds. Since 1895 millions of lives have been spared by the intelligent use of the x-ray and many thousands more can be saved by a yearly health examination or audit.

Preventive Medicine. To preserve its integrity and standing, every business organization or company conducts a yearly audit and examination of its affairs. This is compulsory, not because of its expense but because the examination renders a financial statement of the company's affairs and activities, to determine *its health and standing*. Its future is guided by this report. Similarly, an investigation of the health of the individual plays an important part in detecting hidden, symptomless or impending disease. To make this examination complete, the use of the x-ray is indispensable. The early stages of some diseases, many of which are very serious, because they produce few or no signs or symptoms may escape detection if the x-ray examination is omitted. Let me make this more clear by relating to you a recent experience.

A short time ago the superintendent of a building company fell from the first floor of a factory in the process of construction, a fall of about

twenty feet. He picked himself up from a pile of sand and timber apparently unhurt and resumed his work. That same evening he visited his family physician for a backache, presumably from his fall, and his doctor advised an x-ray examination of his back. The x-ray examination revealed no broken bones but a large stone was found in the left kidney which had become enlarged about one one-half times its normal size. Further investigation disclosed that this stone was blocking the flow of urine from the kidney to the bladder. Previous to the accident, the patient had experienced *no symptoms* referable to this kidney stone. The stone was removed and the kidney allowed to remain; the patient is now well with his kidney function normal. How long the stone had been present in the left kidney is not known by the physician or patient since no symptoms had arisen to cause him to seek his doctor. The fall on the back had necessitated an x-ray examination which by coincidence showed a stone. A yearly examination of the patient to include an x-ray study would have made the examination complete and would have shown the presence of this kidney stone. Fortunately this kidney was saved. The condition of this patient is called, in medicine, a silent stone, since it causes no signs or symptoms. A very frequent cause for removal of a kidney is prolonged obstruction due to a stone which blocks the flow of urine and results in so much damage to the kidney that it becomes a hollow sac filled with fluid, a condition which demands removal since it endangers the life of the individual.

We may have, in the body, other silent conditions besides a kidney stone, for example, a silent gall stone, a silent stomach or peptic ulcer, silent heart disease, silent lung tuberculosis, silent teeth abscesses, etc. A yearly health examination, to be complete, should include an x-ray study as it will disclose all the above conditions cited. Therefore the use of x-rays on people who "have never been sick a day in their life" is an intelligent step in the modern practice and development of medicine.

In the past the efforts of physicians were directed to the cure and treatment of existing disease and suffering. Many people still believe that, since they have no pain or special discomfort, they are free of disease. Very often, however, when pain and discomfort do appear, the disease is far advanced and hence much less can

be done. Disease does not always manifest itself by producing symptoms such as pain and fever. To avoid and check disease, modern medicine aims to prevent and detect diseases in their earliest stages. Hence an annual health examination is a progressive and important step in the detection of beginning disease.

In your yearly health audit or examination it is very important to see your physician first. Your family doctor knows you best. He possesses knowledge of your physical being gained by an intimate study of you covering a period of years and is best qualified to render sound judgment concerning your body. His recommendations are practical and appropriate to your case. For your own welfare it is wisest to carry out his suggestions as they mean the most to you. He believes in preventive medicine and if he desires information requiring the use of x-rays, he will send you to a competent, qualified physician specializing in this type of work. A qualified x-ray laboratory is always supervised by a physician especially trained and skilled in this type of work. Some people using the services of a commercial laboratory, operated by men who are not physicians and are untrained in the diagnosis of medicine, must have these services repeated. These x-ray examinations are usually inadequate and very frequently incorrect and hence unfortunately subject the sick person to added expense, which can be avoided in these trying times. Therefore follow the advice of your doctor when he recommends a physician who is an x-ray consultant.

Modern medical science has stamped out pestilence and plague and has added many years to the average span of life. The next big problem which demands solution is the maintenance of individual health. Statistics have shown that of the thirty-eight years which have been added to the average span of life, only ten years have been added to the lives of those who reach adult life. An individual of 27, therefore, can only expect to reach the age of 63. Although the general expectancy of life has been lengthened, there is need for much added improvement as the expectancy of life after an adult reaches thirty-seven has diminished in this country during the last ten years.

Preventable diseases *are* controllable. In the higher age group, cancer, heart trouble, kidney

disorders, hardening of the arteries, etc., diseases which are controllable in their beginning take an appalling toll. I do not wish to infer that x-ray examinations, taken every year, are needed in all conditions to which reference has been made, but the value of your doctor's suggestions should not be discounted and that certain x-ray examinations are desirable for everyone to complete one's annual health examination and to obtain the greatest worth. Treatment, while necessary and valuable, is far more costly than the means of prevention.

6060 Drexel Avenue.

THE CONTROL OF UNDULANT FEVER FROM THE STANDPOINT OF THE VETERINARIAN

W. H. WELCH, D. V. S.
LEXINGTON, ILL.

Comparative medicine and pathology is always an interesting and instructive study to physicians and veterinarians. It is the basis for practically all scientific medical advancement. Disease differs only in the species of animals attacked. Many are infectious or contagious to their kind; some are directly transmissible back and forth through different species that may be involved; others by reason of the consumption of flesh or other by-products of an infected animal; still others require an intermediary host, etc. There are many diseases once believed to attack only the lower animals that are now known to be directly transmissible to man, and in spite of the wonderful strides of medicine during the past century, future investigation will undoubtedly disclose many more of the lower animals and their diseases as representing in some manner yet unknown an actual hazard to human health. To the thinking scientist of today revelations of this character are considered still in their infancy.

A disease affecting the human which has been described in the past under a variety of names, but which is now universally accepted under the nomenclature of "Undulant Fever" has recently proven to be directly transmissible from animals to man. It is unnecessary to enumerate the various disclosures that led to the establishment of this fact. It is sufficient to state that undulant

fever is now recognized as a condition in the human caused through contact with some of our infected domesticated animals, or through ingestion or contact with some of their infected by-products; that the etiological factor is an organism or germ which has been found in all our domesticated animals, the type of which varies slightly with the different species of animals which harbor it, but all believed to be descendants from a common parent strain; that 3 different species of animals, namely goats, swine, and cattle with the organisms harbored by them, known respectively as *Brucella Mellitensis*, *Suis* and *Abortus*, are generally accepted as responsible for the development of "Undulant Fever" in man, although inasmuch as these organisms are known to be directly transmissible to sheep, mules, horses, dogs, cats and poultry, we cannot with our present day knowledge of this disease as it affects our various animals, assert conclusively that these latter named animals do not represent a potential danger for the human.

Not being a laboratorian, it is my purpose not to enter upon any discussion of these various types or their relationship to each other, except as to their bearing on the practical control of this disease in the human. It is sufficient to state that in this Middle West climate where practically no milking goats are kept, we rarely discover the caprine type as being responsible for the development of undulant fever, except where the exposure has been of foreign origin. Even in localities where infected bovine herds are most numerous, the porcine type is the organism most frequently isolated as the etiological factor. This may be explained by the fact that of all the various types of this organism studied, the Bovine type may be considered the least pathogenic to the human, as well as being confined largely to the reproductive organs of the dam and discharged only around the parturition period. On the other hand the porcine type is recognized as having a more general distribution throughout the body of the infected swine, having been isolated from practically all the important glands as well as the bile, urine, feces and reproductive organs, dead feti and placentae.

Again this porcine type is not infrequently isolated from the udder of the cow, thus affording additional opportunity for both ingestion and contact exposures. Regardless, however, of

the type of organism involved in the production of undulant fever, or whether caused by ingestion or contact it does not appear to be associated with any specific variation in the syndrome of the disease. There are many factors involved, however, that serve to classify it as resulting far more often from contact than from ingestion. We have plenty of convincing historical data as to the existence of bovine infectious abortion for centuries, yet in spite of the vast increase in both the numbers of infected animals and herds, there has been no proportionate increase in human cases traceable to that source. The enormous number of organisms consumed in raw milk during the past years without apparent ill effects, coupled with the fact that farmers and those persons frequently contacting animals in various ways (regardless of whether consumers of milk or other by-products) do actually furnish the largest percentage of patients of any group, would serve to indict it as an occupational disease. In cities the patients are almost equally divided between the sexes, but in rural districts the males predominate in the ratio of 8 or 9 to 1, again indicating the predominance of animal caretakers among the patients. Without doubt great harm has been done the dairy interests through the over-emphasis that is usually placed on milk or milk products during the investigation by the attending physicians as to the etiological factor in each individual case of undulant fever. Obviously the non-consumer of milk or milk products, or the consumer of pasteurized milk, must necessarily receive his exposure through contact with an infected animal or their infected by-products, or through contact with some animal that has associated with another infected animal and may be thus considered in the light of a mechanical carrier of the disease. Of this phase of exposure we know but little, but in those instances where the history recites no contact with farm animals, may I suggest that the dog and cat are two animals that possess a great propensity for the association of other animals; that they are consumers of milk; that not infrequently they feast on the placentae of infected cows, swine or their dead feti, or dead poultry or their offal; that they are killers and consumers of the carcasses of rats or mice that may have done likewise, or that they have been in intimate contact with infected animals or their

stalls. Furthermore has not the housewife who has trimmed a pork chop or a steak, helped with the grinding of sausage or hamburger, and accidentally included her own finger in the operation, experienced a greater exposure to undulant fever than has the constant consumer of infected milk who actually possesses a perfectly healthy alimentary tract? All branches of the medical profession are united concerning the value of milk in the daily ration, and should lend every effort to increase the consumption of good pure milk that is known to be perfectly safe for human ingestion. They should also recognize that a panic follows any announcement casting suspicion on the milk or water supply of a community and on investigating the origin of each individual case of undulant fever the matter should be approached in a diplomatic manner that will not frighten a consumer away from a supply that is believed to be perfectly safe.

In further consideration of the effect of association with animals in producing the largest group of patients affected with undulant fever, it was thought that the following data relative to veterinarians would be of interest since they doubtless as a group may be safely said to furnish the highest percentage of exposure that can be mentioned. During the veterinary conference at the University of Illinois, February, 1930, the blood of 74 veterinarians, 13 laboratorians, and presumably unexposed persons was tested by Dr. H. E. Hasseltine, U. S. Public Health Service, Washington, D. C., with the following results:

3. veterinarians gave positive reactions in 1:80 or higher.

5 veterinarians gave positive reactions in 1:10 to 1:40.

8 veterinarians gave partial agglutination 1:10 to 1:80.

Of 13 workers in animal pathology 1 positive in 1:160.

1 partial in 1:160.

1 partial in 1:40.

8 unexposed persons gave 2 partial in 1:10.

Huddleson of Michigan testing the blood of 49 practicing veterinarians found 15 reactors positive in 1:50.

6 reactors positive in 1:100.

3 reactors positive in 1:200.

4 reactors positive in 1:500.

Questioned as to past or present manifestations of the disease, only 3 gave a history of a symptom complex characteristic of the disease, yet 26 per cent. gave reaction in titers that is universally accepted as indicative of the disease. One had been affected with the disease in 1924,

and in 1928 his blood still agglutinated 1:50, and the same titer was noted on this test in 1930; on the other two reactors it was 1:100.

In Denmark, Alexander Thomson reports 65 veterinarians who had practiced more than a year; 94 per cent. showed brucella infection. Five months after graduation 15 gave positive reactions, one of which was actually affected with the disease. Other results were:

16 bacteriologists showed 10 positive reactors. Out of

21 herdsmen, 10 reacted

21 milkers, 6 reacted

23 herd owners, 9 reactors

20 drovers, 1 reactor

10 milk testers in dairy stores showed 1 reactor

26 butchers showed 5 reactors

12 veterinarians as meat inspectors showed 4 reactors.

The above data suggests that in interpreting the results of the agglutination tests in the human some allowance must be made concerning the occupation of the patient if errors in diagnoses are to be avoided. Consideration must also be given to those diseases the blood of which is also agglutinated by the Bang antigen. That the laboratorian has accomplished a wonderful work so far in undulant fever none will gainsay, but that there is much desirable information to be acquired is quite evident.

With the veterinary profession the study and control of any disease whether sporadic, or infectious and contagious, is always directed from a purely economic standpoint, unless it be proven a hazard to human health in which case it immediately becomes a matter of joint concern to physicians, laboratorians and departments of public health as well. Since the beginning of the present century, bovine abortion infection or Bang disease has represented the most serious economic problem affecting livestock, and as such has received more study and investigation at the hands of our experimental scientists all over the world than has been accorded any other single disease during that time. We have therefore as a result learned much regarding the activities of the Bang bacillus in its relationship to bovine abortions, premature births, sterility, mastitis, calf scours, calf pneumonia, retained placentae and various diseases of the unborn feto, placentae and the reproductive organs of the dam, the etiology of which was due primarily to infection with the Bang organism. However, we regret sincerely that there is still very much

desirable information which we do not as yet possess. It is a matter of congratulation, however, that we do possess sufficient knowledge to enable us to eradicate this disease from our infected herds of livestock and to grow therefrom a herd free from the infection and to maintain them thereafter in that condition. The merits of the blood agglutination test, its limitations; the segregation of non-reactors and the procedure of raising the younger animals entirely free from Bang disease are facts fully attested by the numerous herds throughout the United States that have been officially declared as free from this dreaded disease and as a result are permitted by all the various state sanitary authorities to move inter-state and intrastate without restriction. There are 102 herds so accredited in Illinois alone, and approximately 1115 herd-owners who are endeavoring to eradicate Bang disease from their cattle in order that their herds may also qualify under the plan that is known as University Project No. 1046, and many thousands of other cattle not enrolled under this project have as a result of this educational work been tested and the reactors removed. Briefly stated this plan of eradication consists of conducting the blood agglutination test on the entire herd of cattle, goats or swine every thirty to sixty days, and removing all the reactors until a clean test is had, the work being done by veterinarians who have been officially accredited for that purpose. When two annual or three semi-annual tests have disclosed no reactors the herd is recommended for accreditation, the final test being checked by the State University Laboratory. It is a matter of congratulation that approximately one-fourth of all the practicing veterinarians in Illinois have spent their time at the University laboratory studying the technic of this agglutination test and have returned home to draw blood samples from their local herds, conduct the test and submit their findings along with duplicate samples to be checked by the State diagnostic laboratory in order that they may demonstrate their efficiency and become accredited for this work.

The control of any disease in the human that has its origin in the lower animals is easily stated—*Stop it at its source of origin*. While it is believed that the weight of evidence supports the contention that in the United States

at least, undulant fever is most often contracted through contacting infected animals and their products rather than ingestion of such, we must necessarily recognize the potential danger that exists through the consumption of raw milk and its products, not only in undulant fever, but in tuberculosis, septic sore throat and other milk borne diseases. Eradication of tuberculosis in cattle was first agitated as an economic measure, but not until it was demonstrated to be transmissible to the human and a joint health problem did its eradication make progress. Likewise was Bang disease first prosecuted as an economic problem, but is now a matter of grave concern to all in charge of human health. The problem of mastitis in the dairy cow is now upon us and is no longer just a condition effecting the efficiency of the herd, it is a human health problem demanding our serious attention. Milk is the most universally used food commodity of mankind, and the public has a supreme right to know that every drop sold is perfectly safe for consumption. The first step in this procedure is to see that it is produced by healthy cows, and it is equally as essential to know that the conditions under which it is produced are sanitary. It should be impossible to sell to the public any raw milk except certified, and it should be as much a duty for food inspectors to know that it is *produced* under sanitary surroundings and handled in a sanitary manner prior to reaching markets as it is for them to see that it is kept under sanitary conditions just prior to its sale to the public. The problem of the eradication of tuberculosis in cattle is well on its way to completion, thanks to the combined efforts of public health officers and the medical profession. Co-operation is again needed in seeing that in every community the supply of milk is absolutely safe for human consumption.

DISCUSSION

Dr. Edgar C. Cook, Mendota, Ill.: I would like to ask if there is any cooperation between the Public Health Department and the Veterinarian Department in this State. I have reported three or four cases of undulant fever in the past year and was assured by the Public Health officials that the State veterinarian would investigate the herd but a year has passed and no one has shown up yet.

Dr. W. H. Welch, Lexington: I cannot say since July 1st, but during my regime as State Veterinarian, Dr. Andy Hall, Director of Public Health, approached me on this subject stating that he would investigate

the milk supply of each case of undulant fever reported to his office, and secure the signature of the owner of the herd, provided our department would send a man and bloodtest the cattle free of charge to the owner. In each instance, milk samples were also included and tested, and following the first trip, we also drew blood samples from all the swine on the farm, and in the later cases blood samples from the horses, and from about 50% of the matured poultry on the farms were also collected and tested. Those statistics are in the hands of the Public Health Department. Dr. McShane would have them.

Dr. J. J. McShane, Springfield, Ill.: I might answer by stating that we send a field man to investigate each case reported. He is supposed to obtain authority from the herd owner requesting that test be made. We can't force a test on any herd owner. The request must come from the herd owner himself, and this request is relayed to the Division of Animal Industry and they send a state veterinarian to make the test without any charge to the owner of the herd.

STUDIES IN TUBERCULOUS MENINGITIS WITH SPECIAL REFERENCE TO RACIAL SUSCEPTIBILITY

LEONIDAS H. BERRY, M. S., M. D.

CHICAGO

Introduction. It has been observed for years by clinicians and vital statisticians that tuberculosis has a higher incidence among the Negro population than among the white population taken as a whole. Studies have usually been made from group mortality statistics based on death certificates of enormously large groups from widely separated localities. Such are the studies of Dublin¹ of the Metropolitan Life Insurance Company and Sydenstricker². Usually several or all clinical forms are considered together. It is my belief that much more correct and beneficial information on this subject of tuberculous mortality may come from studies of single clinical or pathological forms of the disease proven by autopsy, where the patients lived in approximate localities. It is generally held that acute forms of tuberculosis are characteristic of Negroes and that this fact is best explained on the basis of racial susceptibility. (Carter³, Brock and Black⁴, Pinner⁵ and McCarthy⁶.) It has been shown by Krause⁷ that acute tuberculosis is a manifestation of tuberculo-allergy and not necessarily lack of resistance and that the two phenomena may or may not run parallel. The relationship of tuberculo-allergy and tuberculo-immunity and indeed the entire concept of

immunity and resistance is as yet vague. Individual immunity and susceptibility to tuberculosis rest upon a much firmer foundation than any analogous phenomena determined by race.

Dublin (Op. cit.) says, "color does exert more or less influence—how much of this influence is due to "racial" immunity or susceptibility and how much to racial customs, economic status and environment is difficult to determine. The factor of "crossing" of white and Negro bloods also beclouds the issue, since the mulatto, the octoroon, etc. have both white and Negro blood, although they are classified as colored."

Pinner (op. cit.), investigated the matter of pathological difference of tuberculosis between Negroes and Mexicans on the one hand and whites on the other. He concludes that a fair percentage of Negroes show lesions which are practically diagnostic for the Negro and that there is a very definite difference between the disease pattern as it is seen in Negroes on the one hand and whites on the other. He further concludes (on the basis of post-mortem findings) that tuberculo-immunity, (a very vital phenomenon) is in Negroes inferior to that of whites. Rogers⁸ and Bogen⁹ concur in the opinion that there are no essential racial differences in the pathology of tuberculosis in colored and white patients. Bogen shows by morbidity and mortality rates that the difference can be accounted for mainly by the fact that Negroes generally apply for treatment later than whites. Pinner admits that environmental factors can explain the greater incidence but disagrees that they may account for the so-called pathological differences.

Pinner's material was partly from a sanatorium in Detroit and partly from a general hospital in Chicago. Included were cases in which the primary cause of death was tuberculosis, all clinical forms and all other cases in which post-primary tuberculosis was an incidental finding. His studies were largely the classifying of cases *a priori* into the categories of hematogenous, lymphogenous, and direct routes of spread. The cases showing the widest metastases at autopsy were assumed to have had the least "racial" immunity during life. These phenomena obviously varied according to whether there was a fatal tuberculosis or tuberculosis as an incidental finding. Another variation would

depend upon whether the fatal tuberculosis was chronic indurative, broncho-pneumonic, or Pott's disease terminating in a fatal meningitis, etc. The mechanism of resistance would be different in each of these cases, yet Pinner's conclusions were made on the basis of the mass analysis of all such cases.

The aim of this study is to make a detailed analysis of all cases classified under one pathological heading according to race, age and sex, in the same hospital, where clinical and pathological studies conform to the same standards and where the patients lived in proximate localities.

Etiology. Among 3,835 autopsies done at Cook County Hospital, January, 1929, to August, 1932, 505 had, as the primary cause of death, tuberculosis, all forms. Of these, 159 were tuberculous meningitis. Most treatises on tuberculous meningitis emphasize its occurrence in childhood and minimize its occurrence in adults. Our cases reveal many instances in adults in which no pre-existing clinical tuberculosis had been diagnosed, and autopsy findings were those of acute, so-called childhood types of tuberculosis with generalized miliary spread. Our studies show the greatest number of cases between the ages of 1 and 2 and a gradual decline to only 2 cases between 11 and 15 years. Then, there is a gradual rise to another peak around the age of 30.

When the cases are listed according to race it is found that 69% were colored, 25% white and 6% Mexicans. The greatest difference of racial incidence occurs in the children, i.e., cases below 12 years. There were 2.8 times as many colored as white adults and children; while there were 6 times as many colored as white children. On the other hand among the adults there were only 1.5 times as many colored as white. Thus, most of the colored cases, 61.8% were children while most of the white cases, 71.8% were adults. All of the Mexican cases were children. Part of the higher incidence in the colored group is accounted for by the fact that a larger percentage of autopsy permits are secured from colored patients than white at the Cook County Hospital; 42% of all autopsies are done on Negroes while there is a smaller proportion of admissions and deaths.

Tabulations listing predisposing factors in

order of frequency, show that contact with tuberculosis led, with measles, otitis media, whooping cough and rickets closely following. In approximately half of the childhood cases contact history was elicited; 36% of those questioned gave a positive contact history. Whooping cough and measles are well known predisposing factors to tuberculous meningitis. Myers¹¹ found meas-

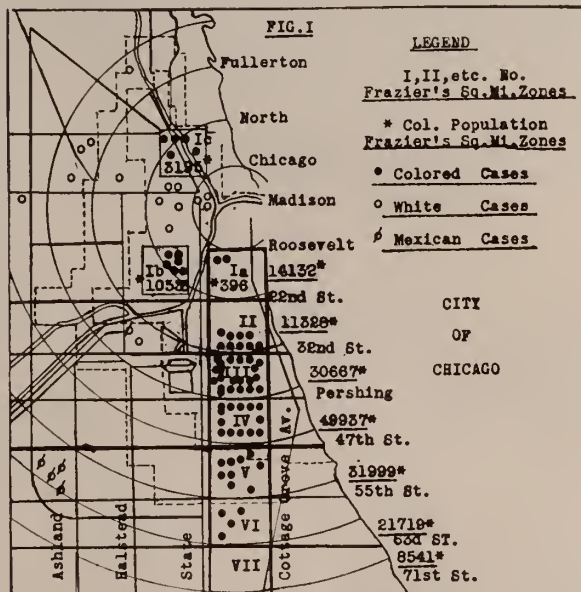


Fig. 1. Above map shows residences of 142 cases of Tuberculous Meningitis (Autopsies Cook County Hospital) within concentric mile zones from State and Madison Streets. The relation of Negro cases to Negro population in seven square mile zones is illustrated.

les in 26% of his cases, whooping cough in 22%, otitis media in only 4% and rickets apparently did not occur in his cases. Rickets occurred in 10% of our cases, all of which were among colored and Mexican children. The frequency of otitis media (12.3%) associated with tuberculous meningitis is striking. Frequently a child had two or more of these disorders. In several instances it was possible to trace the development of tuberculous meningitis as an immediate complication of whooping cough or otitis media. Latent tuberculosis, i.e. Pott's disease and tuberculous hip disease pre-existed in 3% of our childhood diseases.

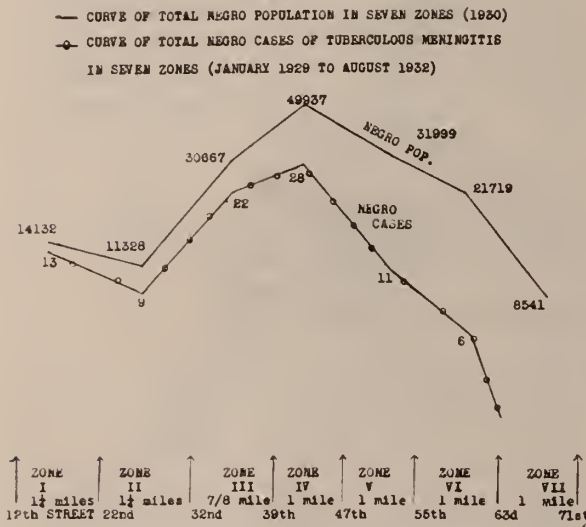
Symptoms and Physical Findings. The symptoms and physical findings were not different from those generally described. The onset was usually insidious with a few days of drowsiness, irritability, head-cold and anorexia with a slight fever. Suddenly there frequently developed vio-

lent headache, vomiting and gradual onset of stupor, rising temperature and pulse and neck rigidity. Detailed data were tabulated showing the frequency of symptoms, physical findings and laboratory findings in children and adults according to race. The 6 most constant findings in order of occurrence were neck rigidity, Kernig's and Babinski's signs, stupor, vomiting, cough and headache. There were no consistent racial differences. Adults were more frequently irrational and comatose, children more fre-

or nearly all, cases which were clinically known to have chronic tuberculosis and in whom meningitis was merely the terminal event, had symptoms longer than 6 months. Those in whom tuberculosis was never previously suspected had histories of symptoms for the most part shorter than 6 months. Arbitrarily we divided them above and below six months. Those below were classified, acute and sub-acute, those above chronic cases. It was found that 92% were in the first group and showed an average of 3.5 weeks duration for the children and 7 weeks for adults. The racial groups were practically the same. The chronic group comprised 8% of the cases and roughly represented the group in which tuberculous meningitis terminated a chronic tuberculosis. In this group there were 2 colored children, with symptoms averaging 12 months duration. There were no white or Mexican children.

Laboratory Findings. Spinal fluid examinations were recorded in 91.4% of cases. Where more than one spinal fluid examination was done the one which was most diagnostic was selected for our data. Spinal fluid findings according to race in children and adults were tabulated. No constant racial differences were noted. The 4 most constant findings in order of occurrence were increased cell count (mostly lymphocytes), positive Pandy, increased pressure and clear appearance. The average cell count was 244 per cu. mm. Spinal fluid sugar was recorded in only 24 cases and showed an average of 35 mgm. per 100 cc. Hemenway¹² found tubercle bacilli in all her cases by special technic which was not used in our cases. There was one case of strept. viridans and another of pneumococci in spinal fluid cultures. Such combinations with tuberculous meningitis are reported in the literature. There was one case with normal spinal fluid pressure, negative Pandy and cell count of 15, 2 days before death and 3 days after onset of illness. It was evident from this study that a spinal fluid cell count may increase markedly within a few hours. In a few cases the clinical symptoms of tuberculous meningitis were markedly out of proportion to spinal fluid findings. Composite tabular records of spinal fluid cell counts total and differential were made. The average per cu. mm. for the various groups were as follows: colored children 232, adults 322;

FIGURE 2



quently had convulsions. Choroid tubercles were seen in only 3 cases, choked discs in 4, but many had impaired vision and photophobia in which no ophthalmoscopic examination was made. X-ray examinations of chests showed increased hilum shadows in 16 and miliary tuberculosis in 18 cases. Several cases with negative X-ray findings showed miliary tuberculosis at autopsy. There was a definite bradycardia among the adults on admission. This was only occasionally noticed in children. Admission temperature was roughly about the same, in children and in adults, the pulse relatively high in children. A marked terminal rise in temperature and pulse was present in 25% of children but only occasionally in adults. There were no apparent racial differences.

1. *Duration of Symptoms:* The average duration of symptoms seemed a fair criterion upon which to base a clinical classification of acute, sub-acute and chronic cases. We found that all,

white children 153, adults 310; Mexican children 205.

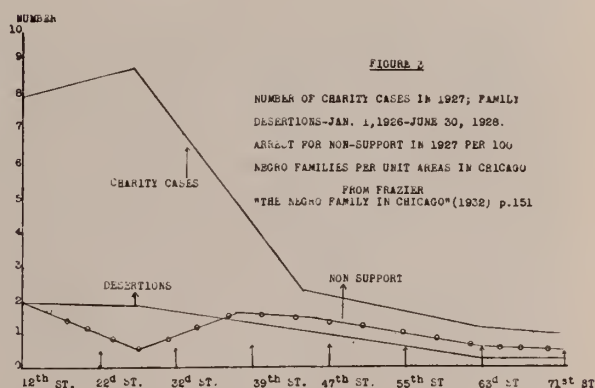
Pathology and Pathogenesis. There were no differences between the pathological changes of the brain and meninges in the respective race groups. 83% of the childhood cases and 63% of the adult cases were associated with an acute generalized miliary spread involving all or nearly all of the abdominal and thoracic viscera and often the pleura and peritoneum. The remainder presented no gross tubercles outside the meninges or a few scattered tubercles in one or perhaps two organs. The incidence of miliary generalization was 10% higher in white than in Mexican and colored children, while the adults were about equally distributed. Pinner (op. cit.) excluded generalized miliary tuberculosis in his study of propagation in the body or tuberculous metastases as an indication of racial resistance or lack of it. I do not think that an adequate study of this kind can justifiably exclude miliary dissemination. Pinner, however, estimates that miliary generalization was higher in his Negro cases. Here again objection may be raised because all forms and not a single pathological type was studied. In such a study a higher incidence of the signs of childhood tuberculosis in Negroes may simply mean that there was a greater number with acute tuberculosis in this group than among the whites in his series and not that there are pathological racial peculiarities.

100% of the children and 75% of the adults had extensive tuberculosis of the thoracic lymph nodes. The ulcero-caseous form was slightly higher among Negro children than white children, but slightly lower among Negro adults than white. There were a few more calcified primary lesions in colored children than white, while there were 1% more among white adults than colored. Jaffe and Levinson¹³ reported a completely calcified primary lesion in a colored girl age 18 months.

The colored children and adults had more tuberculous bronchopneumonia than their respective white groups. White adults had more ulcero-caseous tuberculosis of the lungs while white children had less ulcero-caseous tuberculosis of the lungs than their respective colored groups. There were 14 cases in the childhood group with acute ulcero-caseous pulmonary

tuberculosis. Most of these were colored children. Two cases, one a colored child, age 9 years, the other a colored child age 4 years, presented the anatomical picture of so-called adult type chronic ulcero-caseous pulmonary tuberculosis. The duration of symptoms were 14 months and 9.5 months respectively.

The mechanism of miliary generalization in tuberculosis and the factors which determine its occurrence in a group of cases are time honored subjects of discussion. The factors which may have been involved in the respective race and age groups of our series are too detailed to discuss here¹⁴. Suffice it to say that the doc-



trines of Weigert and of Krause are not entirely supported by the findings in our cases. The more recent conceptions of Rich¹⁵ seem best to explain the facts presented. Rich has shown that allergy and the as yet obscure mechanism of immunity are separate and distinct entities, although they sometimes but not necessarily run parallel. The course of events in childhood tuberculosis is similar to those occurring in a previously non-infected experimental animal. The bacilli disseminate readily and multiply rapidly and unhampered as shown by Krause, Willis and others under conditions favorable to their growth. By the time resistance develops the number and virulence of the organisms in their favorable media may have greatly increased depending on the size of the original dose of infection, even though acquired resistance has developed. If the number and virulence of the bacilli have increased sufficiently they will continue to develop even in their unfavorable medium. It is a familiar fact that bacteria in test tubes will continue to grow in unfavorable

media if their numbers are great enough. Here we have allergy in presence of large numbers of tubercle bacilli which have by their growth increased their virulence. Acquired resistance has developed but with such large doses of infection it is unable to hamper the tuberculous process. The greater the original number entering the previously uninfected individual the more widespread their distribution. With wide distribution of bacilli in the body and allergy we have an explanation for the picture of acute generalized miliary tuberculosis with its massive involvement of lymphatics. This explains the condition as it occurs in children and in those adults who have not previously been exposed to infection.

Krause¹⁶ has shown that there is a dose of reinfection and a spacing of intervals between reinfections that will depress and perhaps destroy, instead of building up immunity. It has been shown repeatedly in experimental animals, and clinically that no degree of acquired immunity in a susceptible individual is great enough to resist sufficiently massive doses of the specific infection. Thus an allergic, previously infected individual may have acquired immunity so depressed that the same state of relatively low ratio of immunity to allergy may develop that was described in young non-infected individuals. This we believe is a much better explanation for the higher incidence of acute tuberculosis in adult American Negroes than "racial" susceptibility. Economic and sociological surveys by Frasier,¹⁷ Johnson¹⁸ and Woofter and Associates¹⁹ give concrete evidence that the majority of Negroes live under conditions of crowding, poor ventilation and poor incomes which are conducive to massive and frequent doses of tuberculous infection.

SOCIOLOGICAL ASPECTS

Isolated Groups and Tuberculosis. It has long since been observed that groups of people isolated from the great urban centers in America and Europe have a high mortality rate from tuberculosis when they immigrate into these centers. This has been observed in the case of Eskimos, Mexicans, Africans and others. There is much evidence that tuberculosis was unknown in Africa prior to the advent of European missionaries and traders. Sorrel²⁰ found on the Ivory coast positive tuberculin tests in 20.9

per cent. of adults, while in Bornake a few miles inland only 2 per cent. During the World War army troops from French Colonial Africa had a much higher mortality from tuberculosis than native French or British troops, although the rate was increased among all groups. These troops had no evidence of tuberculosis before being transported.²¹ This type of susceptibility is similar to that of any previously uninfected susceptible animal. The response is that of the "virgin soil" characterized by rapidly progressive, exudative reaction. It is not due to racial characteristics for it affects in like manner islanders of Mongolian extraction and the nomadic Jew of the desert of Arabia. The latter group after centuries of urbanization prior to their dispersal and exile now give a negative tuberculin reaction and die in large numbers of acute tuberculosis upon returning to Jerusalem from their habitation in the Arabian Desert.²² However, Jews who continued to live in cities have a comparatively low tuberculosis mortality rate in nearly all centers of the world.

Immunologically, the American Negro probably does not belong to these groups of entirely isolated peoples, for he has had intimate contact with American whites for more than 300 years. Zeligs²³ finds that the number of positive tuberculin reactions among non-tuberculous children is even higher among American Negro children than among American white children. The few cases in our series are in agreement with Zeligs' findings. Bogen²⁴ found in 555 cases, of which 361 were white and 229 colored, that 55 per cent. white and 53 per cent. colored had easily demonstrable primary tuberculous lesions at autopsy.

Prior to the civil war the tuberculosis mortality rate was higher among white people than Negroes after 200 years of contact between the two races.²⁵ This is shown by mortality records from Charleston, Mobile, New Orleans and other cities between 1822 and 1865. An enormous increase in the Negro rate occurred immediately after the war when four million ex-slaves were suddenly thrown upon their own economic resources. The rate greatly exceeded the white rate. While diagnosis was not as accurate prior to the Civil War as at present, diagnostic facilities were the same for both groups.

Nationality and Tuberculosis. Another fact

which tends to dispel the theory of inherited racial immunity and susceptibility to tuberculosis is the marked variation in the incidence among national groups of the same race. Flick²⁶ showed in 1908 that the tuberculosis mortality rate for Ireland was 2.15 per 1,000. Austria, with a very old history of urban communities and a mixed Caucasian population had a relatively high rate of 3.36. In America, where the standard of living at that time was much higher than in most European countries, the rate was 1.69. In Jamaica where the population was 90 per cent. Negroes in contact with European civilization for three centuries, the rate was 1.53. When people of any nation are grouped according to city and country dwellers, rich and poor, indoor and outdoor workers, etc., the tuberculosis incidence varies just as much and sometimes more than when grouped according to race. Among Jews who have a much lower tuberculosis mortality than any other national group, there is considerable variation within this group depending upon economic status. In 1908 the mortality rate in the districts of the lower east side of New York almost entirely poor Jewish artisans averaged 12 per 1,000 population. In Harlem where mostly Jews of the business, manufacturing and professional classes lived, the rate was only 3.6. Among Berlin Jews, an economically prosperous group, the rate was 9.81 per 10,000, while in Budapest where they lived under very poor circumstances the rate was 21.93.²⁷

Urbanization and Tuberculosis. Much has been written about urbanization and its immunity conferring powers against tuberculosis. The universally low incidence among Jews and their history of 2,000 years of urban life are cited in support of this hypothesis. Other groups have been urbanized for centuries but not nearly as long as Jewish people. There is the question of whether a group of people by sufficiently intimate social intercourse with a pre-existing urban group during the last few centuries may not be as thoroughly tubercularized as others of a much longer history of urban life. Theoretically, it may be possible to conceive of an inherited immunity to tuberculosis and the passing down from generation to generation in an urban community of a rugged "resistance" to tuberculosis. Practically, however, the proof has not been convincingly demonstrated. Healthy-born infants

of all racial or national groups give a negative tuberculin reaction, prior to exposure to tuberculous infection in their environs. No child is born with a positive tuberculin reaction unless it is also born with tuberculous disease. Our only evidence of "tubercularization" in non-tuberculous individuals is the positive tuberculin or other such tests and the healed primary lesions demonstrable at autopsy and sometimes by x-ray. Urbanized adults of any race, whether of recent or remote urban ancestry may have primary infection and the immunity which it confers. Acute tuberculosis is not proof of the absence of this immunity, since we cannot always determine with accuracy the absence of massive infection, high virulence and predisposing factors. Opie²⁸ assumes that **American Negroes** do not get childhood infection and hereby accounts for the high incidence of acute forms in adults. Bogan (op. cit.) Zeligs (op. cit.) and Pinner (op. cit.) have pointed out that they get childhood infection perhaps more frequently than American whites, as attested by the high incidence of positive tuberculin test in children and healed primary lesions in adults. This evidence of exposure even in individuals of recently urbanized ancestry points toward acquired immunity, if one accepts the well established view that these first infections are the means by which immunity is acquired. The length of time necessary for the development of immunity after primary tuberculous infection in man has not been accurately determined. Rich (op. cit.) finds this period to be about 2 weeks in guinea pigs of average weight inoculated with large doses of tubercle bacilli. Human beings probably require longer periods but probably not hundreds or thousands of years. According to the most widely accepted views, if immunity is not developed with the first infection, progressive and fatal disease ensues. In this case the tuberculin positive child would have clinical evidence of tuberculous disease and the adult at autopsy would have no evidence of a healed primary lesion.

A Community Experiment. The residential sites of our cases were plotted on a spot map of the city (Fig. 1) to see if any correlation could be made between the incidence of tuberculous meningitis and the incidence of certain indices of social and economic status. Tuberculous meningitis being an acute infection and since

the average duration of illness was 3 to 7 weeks in 92 per cent. of our cases, it is highly probable that they acquired their fatal infection or their fatal predisposing factors in the environs of their last address.

The white group was widely scattered but for the most part came from households just on the outskirts of business and industrial districts in the areas of the lowest rent and income levels. The relatively small number of cases could not profitably be studied according to nationality grouping such as Polish, Irish, Italians, etc., nor according to economic zone. However, the majority of the white cases fell within a radius of three miles from the center of the business district. The Mexican distribution was in similarly disorganized areas.

The relatively compact distribution of the Negro cases made this correlation study more feasible than in the case of the whites or Mexicans. 90 per cent. of the Negro population in Chicago, approximately 190,000 people, live on the south side in an area approximately 7 miles long and 1.5 miles wide. Sociologists have found that the processes of social selection and differentiation have taken place within this group just as it has within the population as a whole. Similar observations have been made among Irish, Polish, Italian and other national and racial groups.

Frazier (op. cit.) applied to the south side Negro community the gradient theory of urban expansion (Burgess, E. W.) according to which changes in poverty rates, home ownership and other community variables may be said to proceed in successive square mile zones, which may be represented by concentric circles from the center of the city. (Fig. 1.) Thus Frazier divided the "black belt" into 7 approximately 1 square mile zones between 12th and 71st Streets, north to south and Cottage Grove to State, east to west (Fig. 1). He found that economic status and the better elements of social organization in general increased from the northernmost end nearest the business district southward. Such economic and social indices as the rate of charity cases, desertion, juvenile delinquency and non-support were highest in those zones nearest the center of the business district. These zones had lowest incomes, poorest housing, largest families, highest degree of illiteracy and most recently migrated families.

Conversely these indices were lowest in the southernmost zones which had the highest incomes, best housing, no illiteracy, etc. The degree of family disorganization was directly proportional to the economic depravity of the community and inversely proportional to the degree of economic improvement in all zones. When some of the rates were computed for the Negro group as an undifferentiated mass and compared with similar rates for whites as a whole, the rates were higher for the colored group. However, when studied by the comparative zone method described, the rates were the same for similar elements of the white and colored groups. Figure 1 shows the distribution of colored tuberculous meningitis cases in the successive zones of Frazier in the south side Negro community. These cases fall in areas of highest percentage of rented households, low income levels and relatively high rent. The ratio of the number of tuberculous meningitis cases to Negro population decreases in the successive zones from 12th to 71st Street, as shown by Table I.

It may be seen by reference to Table I that the largest number of cases in proportion to population fall in zone I. There is a gradual decrease in the successive zones southward in the case rate per 10,000 Negro population, so that in zone VII where the social and economic status of the colored population is very good there are no cases. Fig. 2 shows a logarithmic curve of the number of cases in the successive zones north to south compared with the population curve. They are exactly the same type and there is a gradual increase in the distance between the curve in the center of each zone. In other words the case curve falls at an increasingly more rapid rate than the population curve. The increasing distance between the curves in the successive zones is a measure of the greater rate by which

TABLE 1.—DISTRIBUTION OF COLORED CASES IN SEVEN ZONES WITH CORRESPONDING COLORED POPULATION

Zones	Tuberculosis	Negro	Rate per 10,000
	Cases	Population	Negro Pop.
I	13	14132	9.2
II	9	11328	7.9
III	22	30667	7.1
IV	28	49937	5.6
V	11	31999	3.4
VI	6	21719	2.7
VII	0	9117	0.0

the cases decrease from north to south. Correction for age groups 15 years and above and below 15 years (with 1930 census) does not materially change the curve.

The gradual fall of the tuberculous meningitis incident curve from north to south is exactly comparable to Frazier's curves of poor housing, over-crowding, recently migrated families, juvenile delinquency, etc. Figure 3 shows Frazier's graph of rates of charity cases, desertion and non-support in the south side community during the same period when most of our cases lived in that community. The tuberculous meningitis incidence curve is inversely proportional to Frazier's curves of home ownership, old migrant families, northern-born residents, business and professional classes, etc.

These facts are presented to illustrate a method of study by which a more accurate evaluation of public health data and vital statistics may be made. We have little doubt that similar studies on a larger scale would show the fallacy of many widely accepted conclusions and generalizations. Although our cases may be said to be selected, coming from the Cook County Hospital, the factor of selection is not as important as it may seem. Death certificates for Cook County show that in 1929 there were 32 Negro deaths from tuberculous meningitis, 33 cases in 1930, 37 cases in 1931. The figures for the first six months of 1932 were not available. Taking 34 as a yearly average of our cases, it is evident that we were dealing with 80% of all the Negro cases occurring in Cook County during the period studied. This may be accounted for by the fact that because of limited hospital facilities for Negroes elsewhere in Chicago they constitute an estimated 30% of County Hospital patients but only 4% of County population. Secondly, suspected meningitis cases are frequently shunted from other hospitals and homes to the County Hospital where there is a contagious department.

CONCLUSIONS

1. There are no differences between the history, symptoms, physical and laboratory findings of tuberculous meningitis in colored, white or Mexican patients.

2. There are no consistent differences in the primary or associated pathology between the races in the respective age groups.

3. There are definite and consistent differ-

ences between the associated pathology in children and adults without respect to race.

4. There is a much higher incidence of colored cases of tuberculous meningitis than white in our series.

5. In relation to the total post-mortems done, Mexican cases rank highest, colored intermediary and white cases lowest in the incidence of tuberculous meningitis.

6. There is evidence from the experimental community study and from other sources that there are differences of tuberculosis incidence within the Negro group which are just as great as differences between Negroes and whites, and that these differences may be explained entirely by environmental factors.

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4214 Vincennes Ave.

MORBIDITY AND MORTALITY IN PROSTATIC SURGERY

C. OTIS RITCH, B.S., M.D., F.A.C.S.

CHICAGO

The subject of prostatectomy may again be broached now that resection is settling into its proper level and relationship; and many who were carried away by their enthusiasm are again studying the prostatic with their usual sound clinical judgment. As so often happens in medicine in well publicized procedures, too much was expected and demanded of resection. An accurate knowledge of the basic pathological changes in certain instances was submerged in an unaccountable enthusiasm. Too often all and every type of prostatic obstruction was submitted to resection, when a proper selection of cases would necessarily have relegated a certain definite proportion to resection and another portion to prostatectomy.

Lowsley reports about ten per cent. mortality in resection, which is about the average among capable surgeons. Other perfectly reliable statistics are reported with noticeably lower mortality rates. But in the main, the above percentage is probably an average one. In analyzing statistics it is well to bear in mind, among other things, the selection of cases, if any, and the postoperative follow-up. The operation of total removal, prostatectomy, should be followed by a much lower mortality rate than ten per cent. Personally, I believe it should be in the neighborhood of one per cent. But more concerning this later.

In many instances where the results are not published the morbidity and mortality rates are far from laudatory. This is quite evident when one realizes the number of men attempting this work who are in no particular trained in trans-

urethral vesical instrumentation or surgery. Certainly, unusual consequences should be expected when the examiner cannot distinguish the interureteric ridge from the neck of the bladder; or the vera montanum from an hypertrophied middle lobe. Mishaps have been too common to be lightly dismissed. Burning a hole in the floor of the bladder and into the rectum; or burning through the urethra into the rectum are not things one takes sufficient pride in to report. Destruction of the tissues down to the periprostatic or perivesical areas with consequent cellulitis is more commonly heard of. Still more common are those patients upon whom a resection has been done without benefit or relief, and who present themselves for a secondary prostatectomy. Needless to say, most of these were ill-suited for a resection and should have had a prostatectomy in the first place.

There is no question but that resection is the operation of choice in certain definite types of obstruction and prostatectomy in others. The surgeon who advises one or the other indiscriminately and exclusively, without due consideration which type will give the individual patient the most relief, will have less brilliant results than had he employed the particular method for the particular case.

It is universally agreed that in fibrosis of the bladder neck, bars and collars, resection is the method of choice. In the smaller lateral or middle lobe obstructions there are many advocates of either method. Each has his own particular ideas of the manner in which these should be handled. But in the large adenomas, the immense middle or lateral lobes, the best results are obtained by prostatectomy.

Adopting the method suitable to the individual patient rather than adapting the patient to a favored method of operation, will materially reduce both the morbidity and mortality in prostatic surgery. Both are likewise appreciably lowered by the proper pre-operative preparation of the patient, as brought out in a former communication.¹ The surgeon in charge must be thoroughly familiar with every detail concerning his patient, from the time of admission to the final discharge from the hospital. In this manner one is able to anticipate and forestall many complications and sequelae, and to institute

treatment in still others before much progress and development of the complicating pathology.

The incidence of pulmonary emboli, infarction and septic pneumonia is noticeably lower where one exercises proper regard in the handling of tissues. Traumatism with subsequent infection plays a prominent rôle in the causation of complications. One of the prime objections to resection in the moderately large and the immense types of prostate is the considerable amount of traumatism to the tissues. Objection may be raised to this statement by comparing the condition with that present in the prostatic bed following a prostatectomy with a hemostatic bag or pack, which is very conducive to sepsis. However, I¹ decry the use of either except in those rare instances of active hemorrhage. They may safely be dispensed with in practically one hundred per cent. of cases. Probably less than one per cent. and certainly less than two per cent. require such an agent. The two preeminent objections to a hemostatic bag or pack are the probability of infection of the prostatic bed and the excruciating pain and tenesmus suffered by the patient. Secondary hemorrhage results from infection and a tortuous or fibrous urethra is more apt to occur where a mechanical hemostatic agent has been employed.

Diathermy hastens healing in the prostatic cavity and is frequently beneficial. It is likewise useful in seminal vesiculitis which is not an unusual postoperative complication. Those cases of frequency and dysuria due to infection and inflammatory changes in the prostatic cavity are materially helped by diathermy treatment. It is valuable to hasten control in cases of incontinence of a temporary nature and frequently aids in alleviating this distressing condition in the permanent variety.

"The prostatic cavity fills in with fibroblastic tissue whose nature and position render it extremely liable to infection. Complaints of suprapubic pain, perineal discomfort, testicular pain, painful erections, pyuria, dysuria and vague joint and muscular pains may frequently be traced to an infected prostatic bed. In control of these diathermy has proved of value."¹

No place in the whole of surgery is the need, in general, of blood transfusion so palpable as in prostatic surgery: and probably nowhere else is

this need so terribly neglected. The economic condition of the patient plays a rôle in some of these; but when one sees the general surgeon called in to do the comparatively infrequent transfusions that are done, then one naturally concludes that the urologist has not been trained to do transfusion and has not troubled himself to learn the rather simple technic of the procedure. It is a terrible indictment of the urologist. It has already been remarked that the mortality rate in prostatectomy should be in the neighborhood of one per cent. Blood transfusion plays the stellar rôle in reducing the mortality as well as the morbidity rate. These individuals are always elderly, if not distinctly aged and debilitated, prime conditions for innumerable complications, many of which can be entirely warded off by the repeated use of blood transfusion, frequently by only one. The loss of appetite, lethargy and debility so common following prostatic operations are forestalled by the early use of transfusions and alleviated by their tardy use. It is indeed most gratifying to the surgeon to see the almost immediate animation and sprightliness, and the restoration of appetite and feeling of well being enjoyed by the patient following the injection of a few hundred cubic centimeters of blood. I might add that small transfusions or intramuscular injections of 40 or 50 c.c. of blood have a decidedly beneficial result.

The liberal use of blood transfusions has a distinctly favorable result in lowering the incidence of morbidity and mortality in prostatic surgery.

Conclusions. In reducing the morbidity and mortality in prostatic operations one must have a thorough knowledge and appraisal of the individual patient. Sound clinical judgment must be exercised in the selection of cases for particular types of operation, as well as in the management of the patient from the time of admission to final discharge from the hospital.

Diathermy is of value in certain of the troublesome sequelae.

No other one thing helps maintain a low mortality rate as does the liberal use of blood transfusions.

55 East Washington Street.

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SURGICAL DRAINAGE IN GLAUCOMA

MICHAEL GOLDENBURG, M.D., F.A.C.S.

CHICAGO

Although we have learned much about glaucoma in the last 10 years, the problem of drainage is still debatable.

If we accept the modern concept, that the source of the aqueous humor is the intra-ocular capillaries, we must also concede the ability of this fluid to return to this seat of origin. Most of us, however, insist that the drainage angle, that is, the meshwork and canal of Schlemm is the most important avenue of aqueous escape. Assuming these factors to be true in the normal eye and conceding further that specimens of glaucomatous eyes examined microscopically all show evidence of closure of this angle, with peripheral iris adhesions and collapse of the meshwork in this region, we may grant for the sake of argument that such enucleated eyes invariably indicate a very late stage of glaucoma that is no longer amenable to medicinal or surgical aid. We must concede that between this stage of extreme pathology and the probable stages of pathology existing in the average case coming under observation that many degrees of severity may exist. We all concede that the anterior peripheral iris synechia interfere with the function of the canal of Schlemm. Let us presume for the purpose of illustration that such peripheral iris synechia exist in the region of from 12 to 3 o'clock on the dial, and let us assume that as a result a decrease of function of the canal of Schlemm follows to the extent of about 25 per cent. disregarding for the moment the possible compensatory avenues of fluid escape. Let us now presume that in addition to the synechia from 12 to 3 o'clock there also exist synechia involving the area from 6 to 9 o'clock which we will assume decreases the canal function roughly 50 per cent. Thus we may presume that every degree of disturbed fluid escape from 1 to 100 per cent. could exist.

From a clinical standpoint we may presume that the interference with canal function would also be influenced by the type of synechia present, whether they were recent or old, pointed or flat, this we have no way of ascertaining definitely. We do know that such types of posterior synechia

exist in the pupillary area and we also know that if such synechia involve the entire pupillary area that a ballooning forward of the iris in the formation of an iris bombe and secondary glaucoma follows. We also know that a normal iris may be cut without the production of exudate that will result in adhesions, but it is only exceptionally true in an iris that has been subjected to repeated inflammation and congestion. We also know that much may be accomplished with synechia in the pupillary area if carefully manipulated, due to the fact that sufficient space is present for retraction or contraction of the severed iris. But in the drainage angle the regional anatomy is such that even if we were able to separate the synechia, retraction of the iris would encourage their reformation; contraction of the iris should accomplish the desired effect which in a measure may be brought about by miotics.

We must presume from the microscopic evidence that synechia exist in every case of the chronic congestive type of glaucoma. In just what part of the iris circumference these synechia are located is difficult to say. One may obtain some idea of their location by the use of the Troncoso gonioscope, but this instrument never acquired the popularity that would seem indicated.

We may judge by the clinical history and course and the response of the glaucomatous eye to the use of miotics the extent and nature of these peripheral synechia. We may presume in a case that does not respond favorably to miotics in a reasonable length of time, that the synechia present occupy a good part of the circumference or that they are of a type that seriously interfere with the functions of the drainage angle. In a case that responds readily and favorably to miotics that the opposite is true.

In the average case of the noncongestive type with an apparently normal anterior chamber which responds readily to miotics and such other attention as may be indicated, very few if any serious peripheral iris synechia are present.

Granting these factors in general to be reasonably true and accepting them as a formula for a working basis, we may next outline what we are trying to accomplish by a surgical procedure.

In general one may say that all surgical interference so far devised for the purpose of reduc-

ing the intra-ocular pressure in glaucoma may be divided into two classes: First, those that have for their objective the reopening of the natural avenues of fluid escape, namely, the meshwork and spaces of Fontana that lead to the canal of Schlemm, e. g., the various iridectomy operations, cyclodialysis, etc. Second, the decompression operations that attempt to divert the fluids in the anterior chamber to the extraocular subconjunctival spaces, e. g., the trephine, La grange, Herbert, Holth, Critchett-Borthen operations, etc. The Fergus operation is a combination of the trephine and cyclodialysis procedures, unfortunately but little known in this country. The second division may be subdivided into the pure decompression operation e. g., the trephine, La grange and Herbert operations that depend almost wholly on the removal of a section of tissue to establish this drainage and those that interpose a tissue or a foreign substance between the lips of the wound to maintain this drainage as in the iridotaxis and Zorab-Mayou operations.

In the first group we attempt to reopen the drainage angle that leads to the canal of Schlemm. This meshwork we know normally consists of soft trabecular tissues that originate from the tissues existing there, that is, the cornea, sclera and iris. The peripheral iris synechia that are usually present are however central to the meshwork. We know from clinical experience that pupillary iris synechia are difficult to break up, even surgically, if they have existed for a long time. We also know if we successfully separate them in a congested or recently inflamed eye that they tend to reform. In the pupillary area the space present permits the iris borders a freedom for movement that does not exist in the drainage angle, so that one may conclude that conceding our ability to free the peripheral iris synechia in a chronically congested case of glaucoma that these synechia would be very likely to reform. But for the sake of argument let us concede that these synechia have been successfully separated and prevented from reforming by the use of eserine, but the meshwork of the drainage angle still remains to be dealt with before the fluids can enter the canal of Schlemm. This meshwork is a delicate fibrillar structure lined by endothelium and whether we accept this structure as a permeable membrane separating the anterior chamber from the canal of Schlemm or

not is immaterial. Its status in the pathologic state is quite characteristic, namely, crowded against the cornea-sclera by the intraocular pressure so that its original architecture is barely perceptible. The ability to separate these tissues successfully is very doubtful, but conceding that we do so, we have separated connective tissue adhesions that must reform unless the tissues so separated can be kept apart long enough until endothelial proliferation has taken place. We know from clinical experience how difficult this is, even in so crude a state as in burns of the conjunctiva where the tissues are under direct observation and manipulation. Therefore one may conclude that such an accomplishment is very difficult and probably very doubtful of attainment.

But for the sake of further elaboration of our argument let us concede that a favorable result has been attained. All such operations are performed in the region of 12 o'clock with exception of the cyclodialysis of Heine which is a very difficult technique to apply to this area. What proof or information have we that such synechia exist at this particular point and if such synechia do not exist here is it not very likely that we will produce them by our surgical manipulation.

We may therefore conclude that all operations devised for the purpose of reopening the normal avenues of fluid escape in the region of 12 o'clock are attended with some danger and of doubtful ability to accomplish the desired objective, regardless of the fact that the abnormal intraocular pressure may be influenced favorably.

In the next class we have the decompression operations in which the fluid escape is diverted to the subconjunctival spaces. This is accomplished by the removal of a section of tissue in the region of the limbus and it is really a matter of no great import whether you remove a round section as in the Elliott or Fergus trephine operation or an elliptical section as in the La grange procedure or a wedge-shape section as in the Herbert operation. The resultant aim is the establishment of a fistulous tract leading to the subconjunctival spaces. The ability to maintain this fistulous tract was thought to depend largely on the size of the section removed and the favorable healing that would permit of a continuous seepage. Thus punches were devised and separated incisions made to favor such healing. The com-

parative abandonment of the La grange technique was in a measure due to the very soft eye resulting and was followed by many modifications under different names. All of these procedures were and are based on this same mechanism, the idea in mind being to obviate this very soft eye, but to maintain the fistulous tract that permitted seepage. This has been more or less successful, the great difficulty being just how large a section was to be removed and how much of this removed section would remain open and how much would be replaced by connective tissue. We must concede that if we cut out a section of tissue, this cut must heal and as far as we know today, such healing always takes place by the production of connective tissue. We further know, that a tissue that has been subjected to repeated congestion or inflammation does not heal as favorably as one not the seat of such pathology, by that I mean, a greater tissue reaction is always associated with a greater connective tissue proliferation and subsequent contraction which tends to defeat the primary objective.

In the operations devised with the same objective in view, but without the removal of a tissue section, the maintenance of the fistulous tract is dependent on the interposition of a tissue or foreign body between the lips of the wound. The first operation so devised was in 1857 by Critchett, but better known as the iridotaxis operation of Borthen. Many others have been devised with the same idea in mind as in the Zorab-Mayou seton operation where a foreign body was used in place of the iris. Recently the Holth iridencleisis operation has been so modified that it no longer differs in its essential features from the iridotaxis operation. Even with the interposition of iris tissue, failure will follow in a certain percentage of cases, due to factors that favor connective tissue production. If in the formation of the conjunctival flap the tissues have been unduly traumatized, connective tissue adhesion between the subconjunctival tissues and the sclera will take place; a thin or semiatrophic iris will tend to permit the lips of the limbal wound to close and thus in both cases defeat its purpose.

The implantation of a foreign body between the lips of the wound for the purpose of acting as a seton has I believe been almost abandoned owing to the many disappointments,

CONCLUSIONS

1. Therefore one may conclude that operations that have for their objective the reopening of the natural avenues of fluid escape fail to do so, but may reduce the intraocular pressure by other means, probably by the unintentional interposition of iris tissue in the limbal wound.

2. The decompression operations where a section of tissue is removed at the limbus, tend to close unless the section is large or iris tissue prolapses into the wound leaving a fistulous tract.

3. The operations limited to an incision at the limbus with the interposition of iris tissue would appear to be the most positive method for the establishment and maintenance of a fistulous tract.

DISCUSSION

Dr. Harry Woodruff, Joliet: Dr. Goldenburg has mentioned the gonioscope. I have had no personal experience with it; but if it is a practical instrument it would be of great value in glaucoma. Some of the pictures Dr. Goldenburg has shown are I believe gonioscopic views taken by Reese, of New York.

An important point which was brought out was that the use of eserine, its effect was of prognostic importance. If eserine reduces the tension to normal, then there are no marked adhesions of the iris to the cornea in any part. Therefore operation has the best chance of permanent reduction of tension. Of course these are just the kind of cases that the average ophthalmologist would be inclined to continue under eserine.

A number of years ago I became very much interested in an operation, an improved iridectomy brought out by Török of New York, in which he attempted to show how the effects of iridectomy could be much increased. The operation, besides the iridectomy, embraced the additional procedure of cyclodialysis, or iridocyclodialysis, depending upon how brave you were when you had a spatula in your hand and were separating the uveal tissue from the cornea-sclera. I will confess that after having some hemorrhages, I weakened in the extent to which I performed the dialysis, and in those cases in which the separation was not performed, reduction in tension was less apt to be successful. I have a few slides, and perhaps by them I will be able to emphasize the points I wish to make. This represents the normal iris angle, the space called the chamberbay, and as near as I have been able to find out it is $\frac{1}{4}$ mm. normally from the iris surface to the corneal surface in the location of the canal of Schlemm. Here is one similar to the one Dr. Goldenburg showed, in which there is no longer any angle. It is obliterated by the iris tissue lying against the corneal tissue. If you have a case in which that condition is brought out, here again your gonioscope might be of value in determining the condition through the circumference of the eye; it would be very difficult, as Dr. Goldenburg

brought out, to separate this tissue down to the normal angle. This specimen, which was used in the paper, was from the Illinois Eye and Ear Infirmary. It shows very definitely why the iridectomy could not and did not relieve the condition. Here is the scar of the corneal incision; here is the canal of Schlemm; here the iris was cut off. Of course the operator could not get the iris that lay beneath the overhanging cornea and sclera, and a considerable amount of iris tissue still blocked the angle. This is a schematic drawing showing possible lines of incision. I tried to show that the incision could be made in the angle and sufficiently far back. These two lines would indicate where—this is the usual point at which incision is made.

I became sufficiently interested in the subject to try experimentally if it was possible in a normal eye to remove that obstruction. This is a kitten's eye in which I succeeded in getting the incision back beyond the angle. I am back that far—further than necessary in order to get the iris. It shows that it is possible to get back far enough, experimentally at least. This is a kitten's eye in which the incision was made exactly flush with the ciliary body; the iris is removed. So I proved to my own satisfaction that the iris could be removed in the normal eye up to its attachment to the ciliary body. I also satisfied myself that it was not necessary to do a complete iridectomy.

This is a sketch of a glaucoma patient upon whom twenty years before I had performed an iridectomy successfully. She returned after all those years with a return of tension. Here you see what mutilation it would be to do another complete iridectomy. I contended myself by doing a deep iridectomy but only removing a portion of the iris root. The tension was reduced to normal and continued so while she was under observation. Here is one of the disastrous effects of operation on the globe. It is less apt to follow an iridotasis operation, and I made that observation in an article in which I discussed hemorrhage. Here is a specimen of choroidal hemorrhage. Elliott claims that he never saw in intraocular hemorrhage in a trephining operation. There is one. This is the lens in the anterior chamber. That condition may occur in any operation, or without any. Glaucoma is a disease that predisposes to hemorrhage.

The principal point that I would make here is that the chances for the eye are greater the earlier the operation. I believe this is especially true in glaucoma, before we have the iris up against the cornea. Of course if you have that you do not know how extensive it is and your chances in an iridectomy are slight indeed. They are much better with iridotasis though not good.

Here is where the serious thing comes in. You use eserine and reduce the tension and you say all is well, we are going to continue to use eserine. You may do it for years. But for the case that goes well for years under eserine, there are many, many others that do not, and if not operated on early they are failures. I still believe that glaucoma is a surgical disease. To compromise with the patient do a deep iridectomy on

the one eye, providing it is early. I say that the good results are due to the fact that you get the patient early. In acute glaucoma the patient comes at once because of pain. You operate early and you get it before you have the structural change, you still have an anterior chamber and can remove the iris clear up to its root. I have a further observation to make regarding this operation of iridotasis. I have had several cases in which the tension was not reduced to normal limits by iridectomy, and was reduced by the iridotasis. I think however these were cases in which there were adhesions of iris to the cornea.

Dr. O. B. Nugent, Chicago: There are two things I want to mention, along with what Dr. Woodruff has been saying about getting to the root of the iris, in doing an iridectomy. The use of the keratome in my hands is not sufficient to cut down to the root of the iris. I prefer a cataract knife, making a puncture, allowing the point of the knife to go into the anterior chamber and follow the anterior surface of the iris as far as possible. Then the knife will come to the iris angle. I would like to refresh your memory about my statistics that I have made on 2,200 cataract operations in which hemorrhage seemed to follow along with cases that had increased intraocular tension. As you know, Elschnig makes quite a point of high blood pressure as an etiologic factor in choroidal hemorrhage but in my cases I have found that the thing that predisposes to choroidal hemorrhage is intraocular hypertension. Perhaps along this line we should look for more hemorrhage following the operations in cases of glaucoma. We do not because there is not so much damage done to the eye.

Dr. Michael Goldenburg, Chicago (closing): I want to thank Dr. Woodruff for his discussion, and I am pleased that he agrees with me. I visited with Troncoso in New York some years ago and he demonstrated the gonioscope to me. It is a cumbersome instrument to handle and very difficult to use, I should say, in an inflamed eye. In the noncongestive type it would permit of easier manipulation. It should be a valuable instrument, but it has never attained the popularity which it seems entitled to.

I believe with Dr. Woodruff, that the favorable results obtained from an iridectomy operation are due to the proliferation of iris pigment or prolapse of iris tissue into the wound which permits of filtration. It would appear from the slides I have shown that these points are well demonstrated and that at times even ciliary processes may also be prolapsed into the wound. Thus during these operations we may not only cut off iris tissue, but at times even the ciliary process and even the ciliary body, which eventually leads to phthisis bulbi. I prefer the iridotasis operation as you all know because it is more definite and more simple, but we sometimes have failures even in that procedure.

Relative to choroidal hemorrhage mentioned by Dr. Nugent and Dr. Woodruff. A serious choroidal hemorrhage may take place in any intraocular operation where the increased intraocular pressure has existed over a long period. Sudden relief of this pressure by

entering the anterior chamber immediately removes the protective force of the friable capillaries and they explode. We know we remove the extracapillary pressure when we open the anterior chamber in any procedure; the same thing must take place in glaucoma. In glaucoma that has existed over a long period the capillaries are usually sclerosed and friable. On the whole, glaucoma is still a very serious problem and still far from being solved. In the non-congestive type of glaucoma where we try to avoid operation, there is some excellent work being done at the present time.

VALUE OF FRIEDMAN MODIFICATION OF ASCHHEIM-ZONDEK TEST

JOSIAH J. MOORE, M.D., says:

The Friedman test is a modification of the Aschheim-Zondek test for pregnancy wherein young, non-pregnant adult, female rabbits which have been isolated from male rabbits for at least three weeks are employed in place of young female mice. The rabbits are injected intravenously with 10 cc. of urine (fresh morning specimen) and the ovaries examined grossly after forty-eight hours.

In a recent review of 4,595 Friedman tests in uterine pregnancy, performed by thirty-two clinical pathologists, 97.19 per cent of the tests were correct. Of the 2.83 per cent erroneous results, 0.52 were false positives and 2.31 were false negatives. The most common cause of false negative results was testing the urine before the woman had been pregnant long enough for the result to be positive. However, any laboratory procedure which gives results with an accuracy of over 97 per cent must be considered extremely satisfactory. The test was found to be correct in 77.8 per cent of the cases of ectopic pregnancy. Its diagnostic value is greatest in cases in which the result is positive. A negative test does not exclude an ectopic gestation.

The Friedman test is not a means of determining the death of the fetus. Since a positive test means that living chorion is in contact with the maternal circulation, stimulating the production of the anterior pituitary hormone prolactin A, which is found in the blood serum and excreted through the urine, a negative test in either ectopic or uterine pregnancy would indicate dead or degenerating villi with or without a live fetus. The test is positive in cases of mole and chorion-epithelioma, in which no fetus is present; also in some tumors of the testis.

Ravenswood Hospital Medical Library Bulletin No. 2, 1934-35.

It has been positive for as long as thirty days after the death of a fetus in missed abortion.

This test has been found positive as early as ten days after coitus. It usually is positive shortly after the first missed menstrual period. It becomes negative within 24 to 72 hours postpartum.

The most desirable specimen is the first urine passed in the morning, and it should be taken at a time when the patient is not under medication. Catheterization is

not necessary, but cleanliness of the specimen and container is essential. The taking of drugs such as ergot, quinine, luminal, morphine, codeine, or aspirin, affects the animals used for the test, some drugs producing fatal results.

Goldberger and his coworkers have increased the percentage of accuracy by employing two rabbits and injecting 20 cc. of urine into each, so that in over one thousand cases the percentage of false positives was 0.09 and of false negatives 0.55, giving an accuracy of over 99 per cent.

While the Friedman test, like other laboratory procedures, has its limitations, it is the most valuable laboratory aid of the clinician in determining pregnancy. It is useful in determining early pregnancy in cases in which early interference may be necessary, as in diabetes, tuberculosis, renal or cardiac disease; in cases where differential diagnosis between normal pregnancy, ectopic gestation, toxemia of pregnancy, or chorionic tumors and other acute or chronic abdominal conditions is necessary; where differential diagnosis between uterine tumors and pregnancy is required; and in testing the completeness of removal of the products of gestation, hydatid mole, or malignant tumors originating from chorionic villi. Finally, it is of value in the diagnosis of testicular tumors and their recurrence.

HONEY PRODUCES ENERGY RAPIDLY

If you want quick energy, eat honey. So advises the Department of Agriculture in explaining the food value of this bee product.

Not only is honey sweet to the taste but it can be absorbed almost immediately into the blood stream to provide energy without any tax on the digestive system.

Most foods must be digested or broken down into simpler substances before they can be utilized as fuel by the body, but this is not true of honey. It is composed of two simple sugars, dextrose and levulose, which can be absorbed directly into the blood stream without any difficult digestive process.

This fact explains why honey is a desirable sweetening in foods for infants, invalids and aged persons.

INTESTINAL TUBERCULOSIS: PATHOLOGIC AND ROENTGENOLOGIC OBSERVATIONS

Russell S. Boles and Jacob Gershon-Cohen, Philadelphia (*Journal A. M. A.*, Dec. 15, 1934), analyzed 1,000 consecutive necropsies at the Philadelphia General Hospital to show the incidence of intestinal tuberculosis and its relation to pulmonary tuberculosis. Ulcerative intestinal tuberculosis was shown to have its highest incidence in cases of fibro-ulcerative cavernous pulmonary tuberculosis. It was so confined to this group that one might suspect that there is no intestinal ulceration without pulmonary ulceration. It was shown to occur in cases of early or exudative pulmonary tuberculosis, in which, however, it had its lowest incidence (18 per cent). It occurred more frequently in women of the Negro race between 20 and 40 years of age. It was

not observed in any case of chronic fibroid or miliary tuberculosis. Primary hyperplastic tuberculosis or tuberculoma of the intestine was not observed in any case. Such non-tuberculous intestinal lesions as carcinoma, peptic ulcer, appendicitis and diverticulitis, all with and without perforation, were associated with pulmonary tuberculosis. Cardiovascular-renal disease, chronic cholecystitis, cholelithiasis and cirrhosis of the liver were commonly noted diseases associated with pulmonary tuberculosis with and without intestinal ulceration. In view of the uncertainty of the symptoms and physical signs of intestinal tuberculosis, the authors believe that a strong inferential diagnosis of the disease can be made when one considers it in its relation to the various types of pulmonary tuberculosis and as a result of evidence secured by the double contrast barium enema.

FREAK FRACTURE

"How did you break your leg?"

"I threw a cigarette into a man hole and stepped on it."—*Colgate Banter*.

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday, December 5, 1934

LAY EDUCATIONAL PROGRAM—CANCER IS CURABLE

The Story of Cancer (Illustrated)—Wm. A. O'Brien, Associate Professor of Pathology, University of Minnesota.

Cancer Charlatans—Morris Fishbein, Editor, Journal American Medical Association.

Regular Meeting, Wednesday, December 12, 1934

ACUTE CORONARY THROMBOSIS

Pathology—Laurence E. Hines, Assistant Professor of Medicine, Northwestern University Medical School.

Symptoms and Diagnosis of Coronary Occlusion—James G. Carr, Professor of Medicine, Northwestern University Medical School.

The Aftermath of Coronary Thrombosis—Chauncey C. Maher, Assistant Professor of Medicine, Northwestern University Medical School.

Preventive Therapy—Don C. Sutton, Associate Professor of Medicine, Northwestern University Medical School.

Medical Therapy—Sidney Strauss, Professor of Clinical Medicine, University of Illinois.

Discussion—James B. Herrick, Wm. A. Brams, Edward D. Hollingsworth, Italo F. Volini, Robert W. Keeton, N. S. Davis.

Regular Meeting, Wednesday, December 19, 1934

FRACTURE NIGHT

Fractures and Other Injuries of the Hip—Frederic J. Cotton, Boston, Mass.

Discussion—Philip Kreisler, William Cubbins, Kel-

logg Speed, Beveridge Moore, Paul Magnuson, Edwin M. Miller, Edwin W. Ryerson.

GREENE COUNTY

The regular meeting of the Greene County Medical Society was held in Roodhouse, Friday evening, December 6, 1934.

After a chicken pie dinner the meeting was called to order in the parlor of the Oak Cafe, by the President, Dr. E. E. Jouett.

Dr. T. B. Knox of Quincy, Councilor of the sixth district was introduced and gave an interesting and instructive talk on the relationship of the Medical Profession to Relief Work, and pointed out some of the dangers to the public, of Socialized, or so-called State Medicine.

The public has suffered, and is now suffering, because of State Medicine in some of the European countries, e. g. Germany and England. If the American public is wise and alert to the welfare of the home it will oppose any effort to socialize the practice of medicine.

Dr. J. Curtis Lyter of St. Louis was next introduced and gave a very scientific and instructive lecture on the "Angina Pectoria of Effort, Its Diagnosis and Treatment." Dr. Lyter spoke for two hours, using lantern slides to illustrate some portions of his work. Our members and visitors, of whom we had quite a number from Jacksonville, Quincy and Jerseyville, listened with unabated interest to the lecture and to the discussion that followed.

After the scientific session was concluded a business session followed and the following officers were elected for the year of 1935: president succeeding Dr. E. E. Jouett, Dr. A. D. Wilson; vice-president succeeding Dr. Wilson, Dr. A. K. Baldwin; secretary succeeding himself, Dr. W. H. Garrison; censor succeeding Dr. Baldwin, Dr. F. N. McLaren.

The President appointed the following committee to co-operate with our County Relief workers and to represent the County Medical Society in all matters pertaining to the Relief Work.

Dr. W. H. Garrison of White Hall, Chairman; Dr. H. W. Smith of Roodhouse; Dr. A. R. Jarman of White Hall; Dr. A. K. Baldwin of Carrollton; Dr. C. O. Bulger of Greenfield.

The next meeting will be held in Carrollton, March 8, 1935.

W. H. GARRISON, Sec'y.

RANDOLPH COUNTY

Twenty-three sat down to an enjoyable meal served to them at the 2nd monthly Randolph County Medical Society meeting, November 15, at the Hotel Bates, Sparta. The doctors and their wives were glad to have with them, as guests, Dr. Harold Swanberg of Quincy, guest speaker for the men; Mrs. Foulon, Auxiliary Councilor for the 10th district from E. St. Louis, the auxiliary's guest for the evening and Mrs. Gross, District Health Nurse.

After the dinner all adjourned to the lecture room

to hear a constructive slide talk and lecture given by Dr. Harold Swanberg on "Radium Therapy in the treatment of Uterine Hemorrhage."

Later the women listened to an interesting talk on Auxiliary affairs by Mrs. Foulon. The successful evening was due to the courtesy and active participation of Drs. Boynton and Robeson of Sparta. The next meeting is to be at Red Bud.

E. RALPH MAY, M. D., Sec'y.

Marriages

JAMES B. GILLESPIE, Urbana, Ill., to Miss Ruth H. Brown of Norwich, N. Y., November 10.

OSCAR J. MICHAEL, Danville, Ill., to Miss Pauline S. Smith of Brigden, Ont., Canada, October 20.

CLARENCE OLSON, Princeton, Ill., to Miss Ola Mae Dilts of Michigan City, Ind., in Chicago, November 1.

LESLIE H. REIMERS, Chicago, to Miss Margy Ebaugh of Akron, recently.

ESTHER ELIZABETH SMUCKER, Morton, Ill., to Mr. John Hodel at Tiskilwa, Ill., November 4.

SIDNEY WILLIAM WATSON, Alexis, Ill., to Miss Margaret Powers of St. Paul, at Bowlers, Minn., November 3.

FRANK E. WHITACRE, Chicago, to Miss Lillian Myers of Sylvania, Ohio, November 21.

Personals

Dr. David J. Davis has been made president of the Institute of Medicine of Chicago, succeeding Dr. Joseph L. Miller.

Dr. Oliver S. Ormsby, Chicago, discussed "Myxotic Infections" before the Peoria City Medical Society in Peoria, December 4.

Dr. Jack D. Kirshbaum, among others, addressed the Chicago Pathological Society, December 10, on "Sarcomas of the Diaphragm."

Dr. James R. Nakada, St. Louis, addressed the Belleville meeting of the St. Clair County Medical Society, December 5, on tularemia.

Dr. David J. Davis, Chicago, addressed the Kankakee County Medical Society, December 13, on "Relationship of the State University School of Medicine to the Medical Profession."

Speakers before the Chicago Society of Allergy, December 17, were Drs. Meyer R. Lichtenstein on "The Patch Test for Gold Hypersensitivity" and Ben Z. Rappaport, "Cartridge Method for Intracutaneous Tests."

At a meeting of the Chicago Tuberculosis Society, December 13, Drs. Elven J. Berkheiser spoke on "Bone and Joint Tuberculosis"; Meyer R. Lichtenstein, "Immunity in Tuberculosis," and Leo L. J. Hardt, "Gastro-Intestinal Tuberculosis."

Dr. Leon Unger addressed the Southern Medical Association at San Francisco, Texas, on November 13. The subject "The Treatment of Bronchial Asthma."

Dr. Geza de Takats addressed the Kansas City Academy of Medicine on December 21. His subject was, "Surgery in Diabetes."

Dr. Philip A. Halper addressed the Sight-Saving Class Teachers of Chicago, December 8, on "Problems Pertaining to Sight-Saving Classes and Prevention of Blindness."

Dr. J. P. Greenhill read a paper on "Recent Advances in Obstetrics and Gynecology," November 20, before the Ingham County Medical Society, at Lansing, Mich.

Dr. Frederic J. Cotton, Boston, conducted an operative clinic at Cook County Hospital, December 20.

Speakers before the Chicago Surgical Society, December 14, included Dr. Alexander B. Ragins, who presented a clinical report of "Strangulated Hernia Simulating Appendicitis."

Dr. Irving H. Neece, Decatur, among others, addressed the La Salle County Medical Society in Streator, November 22, on "Importance of Hematuria in Diagnosis."

Dr. Francis A. Dulak has been appointed a member of the Chicago Board of Health, succeeding Dr. Edward F. Dombrowski.

Dr. John E. Gorrell, for the past two and one-half years assistant to the superintendent of the University of Chicago Clinics, resigned recently to become superintendent of the Falk Clinic at the University of Pittsburgh.

The Chicago Ophthalmological Society was addressed, December 17, among others, by Drs. Carl O. Schneider on "Use of Prosthesis Over Un-

sightly Eyes" and Harry S. Gradle, "Prevention of Blindness."

Dr. M. E. Rudolph was elected president of the Aurora Medical Society for the coming year. Dr. F. F. Garrison was chosen vice-president and Dr. R. V. Turner was re-elected to serve another term as secretary-treasurer.

Dr. Thomas A. Carter gave a health lecture at Central Y. M. C. A., December 7.

Dr. Philip H. Kreuscher was the guest of honor at a joint meeting of the Vermilion County Medical Society and the Tuberculosis Association, December 4.

Dr. A. F. Lash addressed the Scott County Medical Society at Davenport, Iowa, December 4.

Dr. George W. Hall addressed the Will-Grundy County Medical Society meeting, December 5.

Drs. A. H. Parmelee, Clifford G. Grulee and S. C. Peacock presented a pediatrics program at DuQuoin on December 6 sponsored by the Ninth and Tenth Councilor Districts of the Illinois State Medical Society.

Drs. E. S. Hamilton of Kankakee and R. K. Packard presented a program on "Medical Economics" and "Medical Relief" before Livingston County Medical Society at Pontiac, December 6.

Dr. R. W. McNealy addressed the Rock Island County Medical Society, December 11.

Dr. David S. Hillis addressed the Will-Grundy County Medical Society, December 12.

Dr. Herman L. Kretschmer read a paper before the Allen County Medical Society at Fort Wayne, Ind., December 4 on "The Relationship of Urologic Diagnosis to General Diagnosis."

News Notes

—Dr. Frederick J. Gaenslen, professor of orthopedic surgery, University of Wisconsin Medical School, Madison, addressed the Chicago Orthopedic Club, December 14, on "Fractures of the Neck of the Femur: Experimental and Clinical Studies."

—Speakers before the Chicago Gynecological Society, December 21, Drs. Philip H. Smith on "Hemorrhage in Late Pregnancy"; David S. Hillis, "Diagnosis and Treatment of Late Hemorrhages in Pregnancy," and William J. Dieckmann and Edwin F. Daily on "Role of Blood

Transfusion in Treatment of Obstetric Hemorrhage."

—A bronze tablet has been placed in the Country Home for Convalescent Crippled Children as a memorial to Dr. Frank Billings and bearing the inscription: "In Memory of Dr. Frank Billings 1854-1932, the great physician whose wise counsel and unfailing encouragement were an enduring benefaction to this home." The tablet is the gift of the home.

—Speakers before the Chicago Society of Internal Medicine, November 26, were Drs. Rudolph Schindler on "Gastroscoy—Present Status and Value in Diagnosis of Gastric Disease"; James G. Carr, "Clinical Experiences with a Derivative of Squill," and Joseph L. Miller, "Recent Advances in Our Knowledge of the Thyroid Gland."

—At a meeting of the Chicago Laryngological and Otological Society, December 3, Dr. John Gordon Wilson presented "A New Approach to the Study of Otosclerosis"; Austin A. Hayden, "Otologists and Leagues for the Hard of Hearing," and Miss Gertrude Torrey, "Application of Lip Reading to Cases of Progressive Deafness."

—The Chicago Woman's Club through the Cancer Research Committee announces a series of talks on "Cancer—Its Cause—Its Treatment—Its Cure," at the Chicago Woman's Club, 72 East Eleventh Street, Thursdays in January from 11 to 12 a. m.

James P. Simonds will give the first talk of the series on "What Is Cancer? Its Biology and Pathology. Its Cause."

—The Central Neuropsychiatric Hospital Association recently held its annual meeting in Cincinnati with the Central Neuropsychiatric Association. This organization is composed of twenty-eight of the leading sanatoria of the middle states. A special meeting will be held in Chicago, January 25, 1935, at which papers will be presented dealing with private hospital problems and related medical subjects.

—Mr. John B. Zingrone, roentgenologist of Mercy Hospital for twenty-two years, was awarded the Cross of Chevalier of the Order of the Crown of Italy at a banquet in his honor, December 6. Speakers included Mayor Edward J. Kelly, Dr. Philip H. Kreuscher, past president of the state medical society, and Dr. Julius H.

Hess, president elect of the Chicago Medical Society.

—The University of Illinois College of Medicine presented a program December 7, when the biologic faculty from the university at Urbana visited the school. Speakers included the following:

Richard L. Webb, Ph.D., Mesenteric Lymphatics.

Dr. Lars F. Gulbrandsen, Passage of Bacteria Through Intestinal Wall.

Dr. William F. Petersen, Biologic Reflections of Meteorological Variability.

Dr. Eric Oldberg, The Contribution of Neural Surgery to Medicine.

Dr. Ernst Gelhorn, The Influence of the Oxygen and Carbon Dioxide Tensions of the Inspired Air on Sensory Processes.

Dr. Robert W. Keeton, Studies in Obesity.

Deaths

MERWYN R. BIBB, Chicago; Harvey Medical College, Chicago, 1902; aged 58; died, October 24, of chronic nephritis and secondary anemia.

WILLIAM SCOTT CAMPBELL, Chicago; Rush Medical College, Chicago, 1885; member of the Illinois State Medical Society; past president of the Tippecanoe County (Ind.) Medical Society; for many years health commissioner of Tippecanoe County, Ind.; aged 77; died suddenly, November 3, at his home in Oak Park, Ill., of angina pectoris.

JAMES A. CLARK, Chicago; Chicago Medical College, 1885; a Fellow, A. M. A.; aged 73; formerly on the staff of St. Anthony's Hospital; on the staff of the West Side Hospital, where he died, September 29, of uremia, following a prostatectomy.

ALBERT JOSEPH CROFT, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; aged 56; died, October 31.

WILLIAM RALPH EDDLEMAN, Anna, Ill.; University of Tennessee College of Medicine, Memphis, 1912; aged 46; died, October 17, as the result of injuries received in an automobile accident and of cirrhosis of the liver.

EPHRAIM MELVIN FOLSOM, Mount Vernon, Ill.; Barnes Medical College, St. Louis, 1896; served during the World War; aged 64; died suddenly, November 7, of heart disease.

SAMUEL L. FRIDUSS, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1897; a Fellow, A. M. A.; on the staff of the Englewood Hospital; aged 64; died, November 10, of carcinoma of the bladder.

PHILIP F. GILLETTE, Kankakee, Ill.; Northwestern University Medical School, Chicago, 1896; aged 64; formerly on the staff of the Elgin (Ill.) State Hos-

pital; on the staff of the Kankakee State Hospital, where he died, October 27, of cerebral hemorrhage.

DAVID P. HUESTON, Jacksonville, Ill.; College of Physicians and Surgeons of Chicago, 1888; aged 84; died, October 31, as the result of injuries received in a fall.

WILLIAM C. NORDHOLZ, Oak Park, Ill.; Jenner Medical College, Chicago, 1911; a Fellow, A. M. A.; served with the American Red Cross during the World War; on the staff of the Garfield Park Hospital; aged 49; died, December 7, of coronary thrombosis.

F. C. WILLIAM OBERT, East Alton, Ill.; American Medical College, St. Louis, 1890; aged 71; died, October 16, of arteriosclerosis.

GIFFORD OSBORNE, Brownsville, Texas; Rush Medical College, Chicago, 1895; a Fellow of the American Medical Association; member of Chicago and Illinois Medical Societies; On staff of Chicago Polyclinic, Henrotin, Illinois Medical and Chicago General Hospitals; aged 61; died, September 24, of coronary sclerosis.

AUGUSTUS E. PERLEWITZ, Chicago; Hering Medical College, Chicago, 1907; aged 77; died, October 22, of cerebral hemorrhage and arteriosclerosis.

GRANT PORTER, Plainfield, Ill.; St. Louis College of Physicians and Surgeons, 1896; a Fellow, A. M. A.; aged 62; died, October 20, of carcinoma of the larynx.

CHARLES SCHMIDLI, Bonfield, Ill.; Reliance Medical College, Chicago, 1910; member of the Illinois State Medical Society; aged 63; died, October 19, in St. Mary's Hospital, Kankakee, of intestinal obstruction.

FRANK ELBERT SMITH, Decatur, Ill.; Chicago College of Medicine and Surgery, 1913; a Fellow, A. M. A.; fellow of the American College of Surgeons; chief surgeon to the Wabash Hospital; aged 51; died, November 7, of lethargic encephalitis.

WILLIAM S. STRODE, Lewiston, Ill.; Rush Medical College, Chicago, 1884; formerly member of the board of health; Civil War veteran; past president of the school board; aged 86; died, November 5, near Tucson, Ariz., of cerebral hemorrhage.

LEROY THOMPSON, Chicago; Hahnemann Medical College and Hospital, Chicago, 1908; Fellow of the American College of Surgeons; consulting oculist and aurist of the Illinois Bell Telephone Company and chief consultant in ophthalmology and otology of the Illinois State Industrial Commission; on the staffs of St. Luke's and the Illinois Masonic hospitals; formerly chief of the staff of the Illinois Eye and Ear Infirmary; aged 51; died, November 14, in Bath, N. Y., of carcinoma.

WILLIAM I. TIMMER, Cicero, Ill.; Chicago College of Medicine and Surgery, 1911; member of the Illinois State Medical Society; on the staff of the West Suburban Hospital; aged 54; died, November 14, of heart disease.

FRANK WIELAND, Chicago; Hering Medical College, Chicago, 1896; a Fellow, A. M. A.; formerly professor of genito-urinary diseases, Hahnemann Medical College and Hospital; on the staff of the Henrotin Hospital; aged 65; died suddenly, November 18, of myocarditis and cerebral embolism.

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CONTENTS:

Editorials (See Extended Table of Contents for Titles) 101

ORIGINAL ARTICLES

X-Ray and Radium Treatment of Cancer of the Breast. *Gentz Perry, M. D., Evanston, Ill.*... 129
Why Is an Antivivisectionist? *C. I. Reed, M. D., Chicago* 134
Adequate Hydration in Infancy. *Henry E. Irish, M. D., Chicago*..... 143
The Pathology of Avitaminosis. *Harvey S. Thatcher, M. D., Little Rock, Ark.*..... 145
A Clinical Study of Pyridium in Urethritis. *Maurice B. Wolff, M. D., Chicago*..... 155

The Clinical Value of Electrocardiography. *J. Bailey Carter, M. D., Chicago*..... 158
Peptic Ulcer in Childhood. *James B. Gillespie, M. D., and Cesare Giantureo, M. D., Urbana, Ill.* 160
Modern Conception of Acute Intestinal Obstruction. *Carl G. Roberts, M. D., Chicago*..... 163
Treatment of Whooping Cough with Prophylactic Pertussis Vaccine (Sauer). *Meyer M. Marbet, M. D., Chicago*..... 166
Non-Diphtheritic Membranous Infections. *Walter M. Whitaker, M. D., and Walter Stevenson, M. D., Quincy, Ill.*..... 167

(Continued on Page 8)

Eighty-Fifth Annual Meeting at Rockford, May 21, 22, 23, 1935

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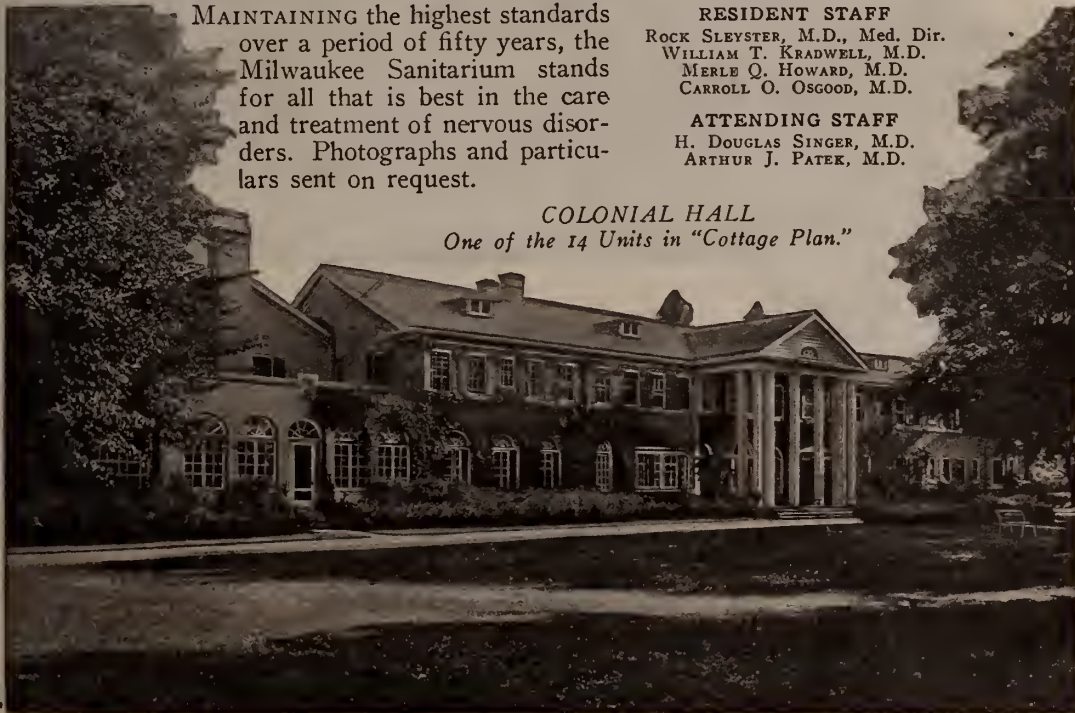
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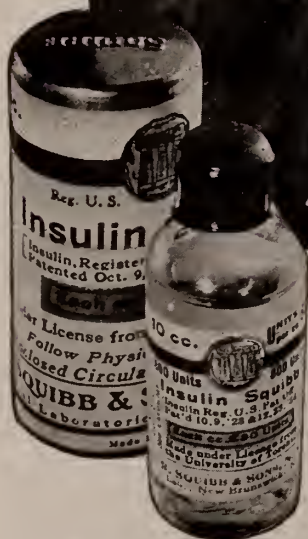


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Editorials

NO SYSTEM OF SICKNESS INSURANCE CAN, IN A DEMOCRACY, DEVELOP INTO ANYTHING BUT A POLITICAL PLAY-THING

Like all communistically inspired bodies and groups, the members of the Milbank Memorial Fund are gloating over the results of socialistic endeavors to flay the medical profession, and hang its hide to dry on the walls of the new socialistic state for which the cornerstone is being laid by such misguided foundations as the Milbank and other highly endowed, unfortunately directed philanthropies.

In a recent issue of the Quarterly magazine issued by the Milbank Memorial fund, I. S. Falk, Ph.D., a research associate of the fund, remarks that:

"There is a vast unrest in American medicine. There is a ferment at work. Physicians, dentists, nurses, hospital administrators, pharmacists and others are conscious of a national uncertainty in the future of medicine.

"It is a common belief that, in respect to organization and social relations, medicine is at a crossroads and has not yet found the signpost . . . A study of experience suggests that, whatever the near future holds, sound planning must rest upon the following basic principles:

1. The provision of good medical care to all the population is essential to the nation's well-being.

2. The costs of medical care should be distributed over groups of people and over periods of time, whether through taxation, insurance, or combinations of the two.

3. Those who render medical care should be adequately remunerated.

4. Quality in medical care should not be sacrificed to economy in cost.

5. The medical care of the dependent and indigent sick is an obligation of society.

6. Group payment of medical costs should be restricted to this purpose and should not be combined with insurance against the loss of wages during a period of illness.

7. Group payment of medical costs should embrace all economic groups in the population to whom the private purchase of medical care brings variable costs which are burdensome and which are incapable of being budgeted on an individual or family basis.

8. The costs of medical care must be distributed according to ability to pay.

9. Group payment of medical costs should be grounded on a compulsory basis.

10. A system of group payment for medical care should not include or permit the operation of proprietary or profit-making agencies or of any independent intermediary between the potential patient and the medical agencies.

Dissecting Mr. Falk's statements in his layman's platform of medicine, there is of course no question about the essentiality of good medical care to the nation's welfare, but who knows what is "*good medical care*" but the doctors?

Good medical care for all the people? Who is going to define it, except medical men themselves, through their professional organizations? As a matter of fact the people of the United States are getting a high quality of medical care at legitimate medical hands. Any other implication is an injustice to a profession that has always given its best—whether the service was paid for or not.

Now the average patient should be made to realize that he has no right to pass by his neighborhood physician who charges moderate fees and gives good service to go to a specialist whose fees, are too high for him to pay. People buy other things according to their means. Why not medical services?

If the neighborhood physician feels that a patient needs more than he can give, he will certainly make arrangements for him to have the best at a cost he can meet. Only an absurdly small percentage of cases really need a specialist's attention.

Yet, "Specialists" are argued for by the laymen out to control medical practice. They howl "overcharge." Yet the public of the United States spends more per year (on each individual item) for cigarettes, cosmetics and moving pictures than for professional services of doctors. This same public insists on medical service that it cannot afford.

Hospitals, insurance companies, municipalities and other governmental units, as well as public health agencies, practice medicine. Doctors do not organize and use lobbies to protect their interests. Doctors, we are told, are poor business men. This would seem to prove it! So certain organizations of laymen feel that they must set things right, and as a profession, doctors must be put in harness because these groups have come

to the conclusion that, unaided, doctors can't guide the destinies of medicine along acceptable lines. Yet examination of the experience of mutual aid societies abroad indicates that although they are organized to give financial relief in time of illness, the quality of service is considered purely incidental. No system of sickness insurance can, in a democracy, develop into anything but a political plaything.

The United States has had one grand political plaything in the recently repealed prohibition amendment.

Distribution of medical costs is a grand idea *but* experience doubts its feasibility. Such distribution requires a change in human nature to such a marked degree that no person shall mind paying for another's sickness, real or imaginary!

The cost of medical care distributed over periods of time is no innovation, it is already done. In fact, too large a percentage of the cost of medical care stretches to infinity, as any doctor's files will show! Periods of time fail to help much. The obstetrician's patient, for example, has at least nine months to save up the amount of the ultimate bill. How often is this done?

That the cost of medical care should be met through further taxation, remember that taxpayers of this country are already paying millions of dollars for medical care of people in their public hospitals, a considerable percentage of whom, as has been proved, are quite capable of paying private practitioners.

As to adequate remuneration for physicians no organization outside of medicine is in a position to define the adequacy of recompense. Physicians want only a decent living, but want it by efforts of their own and want to rate their own price and to give their own charity! Surely this is not amiss!

For, after all, who can set a value on a physician's services? There is no standard except what the medical man considers his time is worth, and what his patient can afford to pay. Certainly he seldom charges for his skill.

The matter of remuneration had best be left to the physician, for he is invariably fairer to his patient than to himself. If laymen attempt to set up standards of remuneration, they are liable to rise higher than they are now unless the layman is actually out to be unfair to the doctor. Somehow it seems to the doctor that the laity does have its prejudices!

Naturally, quality of medical care should not be sacrificed to economy of cost. Obviously the public should be educated to accept the neighborhood physician as the skilled person he really is, quite capable of taking care of ninety per cent. of its ills, and capable of advising when a specialist is needed. Economists seem to have the idea that the public in general goes to specialists they can not afford because that public needs such services.

The medical care of the dependent and indigent sick is an obligation of society; up until now, it has been the obligation of the medical profession alone, who give services free of charge receiving no pay nor wanting any for the treatment of the truly indigent.

Doctors need to eliminate the taking advantage of good nature by patients who can pay a fee and by hospitals which accept such persons as charity.

Now the cost of medical care is always a burden to anybody, be he millionaire or wage-earner. As has been aptly said the patient "is paying for something that lacks three dimensions; and the ordinary human mind finds it difficult to conceive why some tangible thing should be sacrificed in order to pay for an intangible like medical care."

One hundred per cent. of the population know that one time or another there will be sickness in the house. But at least 75 per cent. refuse to recognize the fact and make provision for it by laying away a sickness contingency fund.

Distribution of the cost of medical care is an idea as old as the hills. The trouble is no man, rich or moderately able, wants to be altruistic and shoulder the other fellow's burden. The poorer the patient the greater his altruism.

No sympathy should be extended the patient who insists on passing by good medical service that he can afford and insisting on super-service that he does not need.

"When John Jones, in the lower income bracket, buys a car; despite the fact that he would much prefer a Rolls-Royce, let us say, he selects one in the low-priced field."

"On the other hand, let him need an appendectomy, and he will pass over a hundred good surgeons capable of performing a perfect operation for a moderate sum, and go to an outstanding man whose price he knows is very high. From him he will demand a reduction in the

regular fee. The same is fully as true in medicine as in surgery." All doctors know this.

The worst ailment in medicine today is that doctors are not allowed to run their own business. Now medicine is quite a way down the wrong road, where it has been led, partly because of its own fault in giving everything away.

Medicine finds itself at present competing with lay agencies—competing not for the right to make a living so much as for the right to practice medicine as years of experience dictate it ought to be practiced.

If reformers were honestly in earnest they would be sufficiently candid to admit that any doctor knows more about medicine and about human nature in relation to medicine than does any combination of Endowed foundations or organizations of lay dictators.

VITAMINS AND DEFICIENCY DISEASES

If the future sustains its short but startling past, the science of vitaminology enters the records of the race as the most vital discovery within the memory of civilized man. Neither the arc-light, nor the telegraph, nor the cable, nor the radio, nor the conquest of the air, can hold the proverbial candle to the effect upon mortal man of the perfection of the synthesis and science of vitamins, unless research, today, has made the most glaring error of its career.

Vitaminology may or may not provide for an eager populace, that fabled Fountain of Youth for which even the earliest Aramaic gods and men went seeking, and in pursuit of which thousands of years later the gay Ponce de Leon lead his Spanish cohorts into the wilds and swamps and loveliness of what is now the American State of Florida. Unless some two decades or more of positive research findings, both laboratory and clinical, are utterly without merit, this new science of vitaminology, in ethical application is at once the sword and buckler of the physician and the rod and staff of an afflicted human race.

Now the root idea of vitaminology is that multitudinous forms of human disease and affliction are manifestations of a systemic weakness or deficiency, either in quantity or quality, or in total absence of some element vital and indispensable to the proper functionings of the human body and the human mind. To prove this, intensified study and experiment advance

the premise that toxic conditions, disturbed endocrinology and general malfunctioning exist, not as a cause, but as an effect. In other words, that the bulk of human disease is *less an attack* than it is *a lack of defensive mechanism*.

In 1927, P. Mazé writing in "La Nutrition Minerale de la cellule vivante et les vitamines," designated vitamins as "the hormones of the vegetable world." In further description Mazé commented,—“vitamins consist of highly unstable mineral organic compounds whose presence in plants is necessary in a constant definite ratio before normal metabolism can proceed.”

Subsequent laboratory and clinical findings extend this inherent vitaminic quality to the human race as well as to lesser forms of animal life.

Six years previously in the Bull. Gen. de Therap. of Paris (see vol. 171, page 125 D. Gannassini and P. Mancini had reported "Vitamins regulate trophic changes in synergic connection with the trophic regulating function of the glands of internal secretion." The article, entitled, "Nouvelle interpretation sur le mechanisme d'action des vitamines," is well worth reading in the original. Again in 1927, in "Über die Beziehungen zwischen Hormonen und Vitaminen," E. Vogt demonstrated "intimate relationship between hormones and vitamins."

Laboratories and clinics are busy all over the world since then as to vitamin content. Evans and Burr at the University of California discovered the *sex or reproductive Vitamin E*.

Ethel Browning of Liverpool, Eng., assistant pathologist to the Pickett-Thomson Research Laboratory, St. Paul's hospital, London, wrote in 1931:

"The effects of avitaminosis on the sexual glands are also especially related to the deficiency of Vitamin B and Vitamin E."

Since that writing in England Vitamin B has divided into Vitamin B, coefficient one and B, coefficient two.

Again in 1927 Cotte and Carcosonne in "Carance alimentaire avitaminosis et fonctions sexuelles," Lyon med. Vol. 140, page 617, declare "a diet deficient in any of the vitamins, especially in young girls, may cause irreparable damage to the ovary. Vitamins play the part of true hormones constituting stimulants to ovarian activity and preventing the occurrence of both amenorrhea and sterility."

In 1927 Evans and Burr noted resemblances between the properties of "ovarian hormones and vitamins A and E."

In the Journal of the American Medical Association for January 19, 1935, on page 175, Thomas T. Mackie writes most competently:

"During recent years the concept of deficiency disease has been enlarged. It is becoming inefficiency produces a variety of vague borderline states of ill-health that have no place in existing nomenclature. . . The contributory factors are more complex than those operative in the laboratory. . . Deficient supply of other essential food substances such as iron, protein, calcium, phosphorous and iodine undoubtedly contribute to the syndrome. . .

"We have encountered indications of deficiency disease in forty-seven cases of chronic ulcerative colitis. These observations have been drawn from seventy-five consecutive cases seen in hospital, dispensary and private practice in New York city. They represent all stages of the disease *from mild localized proctitis to advanced and extensive involvement of the entire colon* . . . the objective changes that have been shown to occur in various deficiency states find expression *particularly in the mucous membranes of the mouth, in the skin, in changes in blood chemistry and in the associated anemia.*"

After detailed citation of symptoms and results Dr. Mackie writes:

"We believe, therefore, that deficiency disease is not to be regarded as an occasional complication of ulcerative colitis. *It seems more probable that it is a part of the underlying mechanism. With the appearance of indications of deficiency disease the pathology changes: the symptoms become more complex: the clinical picture more severe and the prognosis more grave.*"

Dr. Mackie evaluates here the situation as a lack of not one but several vitamins and suggests these to be Vitamins A, B¹ and B² (or G), and possibly D while lack of biologically complete protein and of electrolytes appears to contribute to the complex clinical picture in varying degree."

Quoting Dr. Mackie's "Conclusions" we find him saying:

"1. Evidence of deficiency states has been observed in 62.6% of seventy-five cases of ulcerative colitis.

"2. These indications find expressions in the

buccal and lingual mucosa, the skin, the type of anemia and the blood chemistry.

"3. When present in advanced degree they have invariably been associated with characteristic changes in the small intestine.

"4. Secondary or conditioned deficiencies appear to be important factors in the pathologic physiology of the disease."

Dr. Mackie backs up his contentions from his own able and scientific experience by a score or so of authoritative references.

These findings of Dr. Mackie bear witness to the truth of the role previously allotted to Vitamin A in that its functions "promote tissue formation; appetite and digestion; growth and feeling of well-being; increase blood platelets and prevent infections, notably of *EYES, tonsils, sinuses, lungs and gastro-intestinal tract and air passages*, just as they testify to the merits of Vitamins B-1,2, and 3, (or B & G) as nerve nourishing factors and growth promoting factors and pellagra and beri-beri cures, with the functions of these 'B' vitamins listed as protection from nerve and brain diseases and certain vagaries thereof; promotion of metabolic processes; incentive to lactation and promotion of digestion.

Briefly epitomizing qualities of other of the known vitamins it may be as well to review them here as the anti-scorbutic Vitamin C, with its regulating substances and its prevention of scurvy; vitamin D, the anti-rachitic vitamin with its control of calcium equilibrium and regulation of mineral metabolism; and of Vitamin E, the *sex vitamin* with its determining role in reproduction by failure of placental function, its cure of sterility in the female, its retarding action upon sterility in the male, and the current experimentation with this vitamin as to its probable factor in the predetermination of sex. The question of the powers of vitamin E in the metabolism of iron are accepted by some authorities and questioned by others."

Herbert McLean Evans, M. D., of Berkeley, Calif., writing in the Journal A. M. A. for Aug. 6, 1932, of Vitamin E (and he is its accredited discoverer) says in part:

One of the most remarkable results of nutrition researches in the last decade has been the demonstration that laboratory animals success-

fully reared on simplified dietary mixtures consisting of protein fats, carbohydrates and *the vitamins hitherto known*, that although healthy adulthood is reached sooner or later such animals lack the power of reproduction: *i. e., sterility intervenes.*"

Further Dr. Evans in this same article writes: "Other types of sterility almost never give the characteristic picture for male and female as has been described for low E . . . Wheat germ creasingly apparent that chronic vitamin de-oil is one of the best sources of Vitamin E."

Again as to deficiency of Vitamin A which the groping, eager Hippocrates is said to have felt in some sixth sense with his prescriptions of "liver and honey" for the same deficiencies for which doctors now prescribe Vitamin A,—note the comments of Lafayette B. Mendel in the Journal A. M. A. for April 23, 1932:

"A characteristic ophthalmia is an almost un-failing manifestation of a diet lacking in Vitamin A; it is promptly cured if some source of this food factor is included in the diet before the bacterial invasion of the diseased ocular tissue leads to irreparable damage. . . . Particular interest has centered latterly in the evidences of respiratory infections consequent on a diet deficient in Vitamin A. . . . Wolbach and Howe concluded that the outstanding change is a substitution of stratified keratinizing epithelium for normal epithelium in various parts of the respiratory tract, alimentary tract, eyes and the paraocular glands, and the genito-urinary tract. The histologic change characterized by a transformation of cuboidal into keratinized cells seems to be due directly to the nutritional deficiency; infection then readily attacks the weakened tissues."

And again, "It is quite likely that Vitamin A helps to preserve the physiologic integrity of various epithelial structures and thus to maintain "the first line of defense against invading bacteria."

E. V. McCullum who has done magnificent work in vitamin research—(he is said to have first differentiated Vitamin D) writes of Vitamin B deficiency, "Outstanding among the symptoms of Vitamin B deficiency is anorexia." Since its initial discovery by E. Mellanby of Great Britain in 1917-18, Vitamin D has been the rachitic panacea.

Two new vitamins are said to be on the verge of revelation.

What vitamins we have at hand have already opened a new path to longevity and health, and palliation of human misery. But so great a hold has report of these discoveries taken upon the public imagination, and so habituated is the American people to the vice of self-medication and patronage of patented nostrums, that it cannot be repeated too frequently wherever medical men are gathered together, or wherever a medical ear may be sought to listen that it is absolutely necessary, aye, imperative, that the profession shall take its stand flatfootedly as *to the exactions of scientific diagnosis for the administration of vitamin therapy.*

When electrotherapy came first into the picture, far too many of the profession were not only hesitant to give this "magic," as the people thought it, even an ostensible hearing but were over condemnatory of its possibilities. As a consequence we have all sorts and varieties of "rays" and "lights" and "whatnots" sold at every chain store in the country with self-cure circulars and God knows what results to the people who use them.

Charlatans, quacks, and "big business" are swift to seize upon the skirts of science. In the near future the markets undoubtedly will be flooded with all sorts of "new vitamins" to make old men young, blondes out of brunettes, and eight cylinder cars out of decrepit "Tin Lizzies." It has been stated in these columns before and is repeated here with emphasis that it is the urgent duty of the medical profession to present a solid front against the encroachments of cultists and quacks upon this great and recently discovered branch of therapeutics. Probably nobody will be poisoned by any vitaminic nostrums. It will be always simply another case of a poor fool sending "check or money or order; one bottle, one dollar; six bottles five dollars" for a couple of quarts of sugar, water and vegetable coloring.

On the other hand the profession should avail itself of ethical, balanced and dependable pharmaceutical products of vitamin content, veritably as much of an aid to medical practice as are the accepted biologicals and serums now everywhere in ampoule distribution.

PERTINENT VITAMIN E BIBLIOGRAPHY

Because of their length and the limited space in the magazine neither the "Conclusions" nor the "Bibliography" followed the article "Physiological Effects of Vitamin Deficiencies as Summarized Briefly from Recent and Authenticated Research Experiments," published in the Journal for December, 1934.

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Note also the appended excerpt from "Annual Review of Biochemistry, 1: 1932, with its attached bibliography.

VITAMIN E

"Interesting information has been gained as to a relation between vitamin E and certain autoxidants or "anti-vitamins," as a result of work by Mattill and collaborators on the one hand, and Waddell, Steenbock, and others, on the other. Milk to which traces of iron and copper are

added is thereby rendered satisfactory so far as the prevention of anemia is concerned (Waddell, Steenbock, Hart, and VanDonk); but it is found that, though not lacking vitamin E, it gives rise to total sterility in males, with disappearance of germinal epithelium and loss of testicular tissue (Waddell and VanDonk). The addition of the iron to the milk appears to antagonize the vitamin E; and an anti-vitamin can be extracted with ether from the iron-treated ration (Waddell and Steenbock). Cummings and Mattill show that the efficacy of a given source of vitamin E depends on the presence or absence of certain associated fats which function either as autoxidants or anti-oxidants. Thus fats like cotton-seed oil or butter, which take up oxygen relatively promptly, are satisfactory in preventing sterility, while others such as cod-liver oil or lard which take up oxygen after a longer period are unsatisfactory. The anti-oxidant in lettuce has been separated from the vitamin (Olcovitch and Mattill); and independent work has demonstrated the great vitamin E activity of this vegetable (Mendel and Vickery).

"Injection of vitamin E in infantile rats induced hypertrophy of the uterus, resembling the action of pituitary hormone (Verzar), or incited oestrus (Szarka). Spontaneously occurring sterility in cows has been cured by vitamin E (Vogt-Moller and Bay), and its therapeutic application to habitual abortion in man is urged (Vogt-Moller). Juhasz-Schaffer has carried out some detailed work on the vitamin and confirmed many earlier results; the histology was examined fully, and the vitamin shown to be stored in the body, and present in small amounts in the feces. Wheat germ oil added to embryonic chicken tissue stimulated its growth in vitro. Sure has published a full recapitulation of work on vitamin E with eighty references.

MISCELLANEOUS STUDIES ON VITAMIN DISTRIBUTION

"During the year have appeared Parts I and II of Volume VIII of Scheunert's treatise on the "Vitamin Value of German Foodstuffs," published by the German Ministry of Nutrition and Agriculture, and dealing respectively with fruits and vegetables, and flours and breads (Scheunert [2]). With Schieblich he has written a comprehensive monograph on the vitamins in milk, for the "Handbuch der Milchwirtschaft,"

giving close on two hundred references (Scheunert and Schieblich). Other of his papers deal respectively with the vitamin values of: vegetables; preserves; egg-yolk extracts; staple foods; and mushrooms (Scheunert [1, 3, 4, 5]; Scheunert and Reschke). Other writers have examined yeast for B1 and B2 (Quinn, Whalen, and Hartley) and malted milks for A, b1, and B2 (Quinn and Brabec).

CONCLUSIONS

"Perhaps the principal impression one gains in retrospect is the immense volume of work published. To keep pace with this has entailed several hours daily reading throughout the year, of a widely scattered literature. On vitamin D alone some 300 communications have appeared. The great majority of papers represent some definite addition to knowledge; and while, undeniably, communications vary considerably as to their fundamental significance, in no branch of science does ultimate progress seem more dependent on the cumulative effect of continual small advances. Striking progress has been made over a wide area, ranging from clinical medicine to chemical physics. It has seemed best therefore to attempt a comprehensive epitome of the year's work rather than choose certain aspects at random and ignore others of possibly equal value and interest. Among the more important developments we may note the following: The establishment of international standards and units of vitamin activity. Appreciation of the significance of lactic acid excess in avitaminosis B1. Numerous papers on new B vitamins, but results not easily comparable for lack of uniformity in definitions. Role of carotene as pro-vitamin A substantiated. Question as to which absorption bands are characteristic of vitamin A. Physiology of night blindness; and vitamin A deficiency as cause of experimental periodontal disease and nerve degeneration. Preparation of crystalline vitamin D. Hypervitaminosis D and mode of action of vitamin D. Clinical value of vitamin D in arresting dental caries. Influence on vitamin E of associated autoxidants, iron, etc. Within the space of a week or two since the beginning of the new year have come reports of the isolation or identification of vitamins A, B1 and C, by Karrer or Drummond, Windaus and Rygh re-

spectively; discussion of these must be deferred until next year.

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WE HAVE BUILT UP IN THE UNITED STATES A MOST DANGEROUS FORM OF TYRANNY, A MEDDLING PATERNALISM THAT KNOWS NO MASTER

For two decades we have fought persistently and consistently against an overcentralized government in Washington, against the lay dictation of practice of medicine, and against the encroachment of the United States Government into the practice of medicine in fields other than prevention of disease. If democracy (as well as industry and medicine) is to survive, these evils must be stopped. Already we have built up in the United States a most dangerous form of tyranny, a meddling paternalism that knows no master. Of the scores of paternalistic bills threatening Washington it is meet to note that Senator Borah has said:

"The course we are now pursuing will prove in the long run more dangerous to our government than a foreign foe." Senator Borah further said: "A proud strong Nation may suffer a reverse in arms but time may still find it triumphant. An independent and self-reliant people may be overcome by the fortunes of war, but time fights on their side to final victory. But a nation whose citizenship has been drugged and debauched by subsidies and gratuities and bonuses, who have surrendered to the excesses of a treasury orgy, has taken the road over which no nation has ever yet been able to effect a successful retreat."

With Senator William H. King of Utah (congressional record Feb. 10, 1921), we agree "that

the struggle is now on between the consolidated and powerful Federal Government, dominated by bureaucratic forces, and the rights of the people as individuals, as the sources of power and authority, and the rights of local communities and of the states themselves. And the voices that should be strong for local self government, for personal liberty, for freedom, and for those principles and policies that make a strong and democratic people, seem to be silent, and the strident cries of the centralized forces in the land either frightened the people into submissiveness, or win them to the acceptance of dangerous and destructive policies.

What we need now is a leader who will arouse the people to the necessity of putting hooks in the jaws of the federal government and of reviving the spirit of personal independence and local self government which inspired our fathers in the days of the revolution. . . . I wish a crusade would be inaugurated in all parts of the land against the accursed spirit of bureaucracy and paternalism. . . . Congress is becoming so impotent that many believe . . . we sit in this chamber merely to O. K. bills prepared by government officials. It has been charged that we lack courage to support the charge."

Politics, led by loud voiced self styled friends of the people is making steady inroads into every activity, and there is going to be only one outcome. The whole practical progress of the country is going to slow down. A certain type of politician gets office and power by demanding laws or government action for every ache any one of us has. But American progress and prosperity have been maintained not by government or politicians but often in spite of them. They are the product of the free energy, initiative, and intelligence of private enterprises, and we barter our birthright for a mess of pottage if we turn from that wise policy to government aid, bureaucracy and political officialdom. We have no excuse for making such a blunder, for the latter system has been demonstrated in the old world and is one of its chief burdens today.

Repeating what we have preached in this Journal and elsewhere for twenty years, we still believe in the essential virtues—self reliance, thrift, subordination of expediency to righteousness.

We have no sympathy with paternalism or undue dependence on the *Grandmotherly* state,

either in medical or commercial affairs. We resent Governmental meddling in private affairs. We are a staunch supporter not only of state rights but of local autonomy, of local initiative, of neighborly co-operation. We admire the original plan of town government, a government of the citizens and by the citizens.

Personal freedom is in danger, and personal freedom is an essential condition for progress in society. Government ownership of anything tends to shackle freedom. The balls and chains on the hands and feet of a convict in prison are quite bearable in comparison with the shackles which government practice of medicine would forge upon members of society.

Bureaucratic administration and government practice of medicine will mean compulsory shifting of duties proper to the individual to a subsidized government agency and this in the end will destroy the initiative, self-reliance and independence, without which democracy generates into autocracy.

1935 ANNUAL MEETING

Arrangements are now well under way for the 85th Annual Meeting of the Illinois State Medical Society to be held in Rockford on May 21, 22, 23, 1935. The meetings will all be held in the large Faust Hotel, so that it will be unnecessary to go out of the building for any session.

The Winnebago County Society has a well organized Committee on Arrangements, with Dr. T. H. Culhane as General Chairman. Everything is being done to make this a real meeting which will appeal to every member of the State Society. Hotel accommodations are not only reasonable, but there is ample room for everyone desiring to attend the meeting.

The Secretaries' Conference will be held at 9:00 A. M. Tuesday, May 21, and the officers of the Conference will arrange a program which will not only appeal to society officers, but to the membership at large.

The Pediatricians will hold their annual meeting on Tuesday morning, and their officers are arranging a well balanced program which will be of interest to all physicians who have anything to do with the care of infants and children.

The section officers of the five scientific sections will have programs carefully arranged, and

the subjects to be discussed will be of interest to all. The newly created Committee on Scientific Exhibits, with Dr. J. S. Templeton as chairman and N. S. Davis as secretary, will carefully select a large number of interesting scientific exhibits, and will give suitable awards for the best exhibits in each of the three general classes. Further information concerning these exhibits appears in this issue of the ILLINOIS MEDICAL JOURNAL.

The House of Delegates will hold its first meeting at 3:00 P. M. Tuesday, and the second meeting will be held at 8:00 Thursday morning.

The President's Dinner will be held on Wednesday evening, and the local committees are arranging everything to insure the success of this highly important function.

The sale of spaces for commercial exhibits opened on January 10, and the sales to date have been highly gratifying, and there is no question that the Society will have the best line of commercial exhibits that have been shown at any meeting in recent years. These exhibits are selected carefully, and only reliable concerns are permitted to display their products in the exhibit.

The local committees, scientific section officers, and general officers of the Society are working together to make the 1935 Annual Meeting one that will be long remembered, and it is hoped that all members of the State Society will begin now to make their plans to be present when the meeting opens in Rockford on May 21.

SCIENTIFIC EXHIBITS

The Council, feeling that the scientific exhibits at the annual meetings of the Illinois State Medical Society should be featured more than they have been in the past, has appointed a special committee to have charge of the exhibits at the Rockford meeting. It has also authorized an award of \$25.00 for the best exhibit in each of three classes:

1. Exhibits by individuals.
2. Exhibits by non-teaching institutions, hospitals or clinics.
3. Exhibits by medical schools, teaching hospitals or clinics.

Certificates of honorable mention will be given to other exhibits of merit in each of these classes and an award to the best exhibit in all classes.

Those desiring space in the Scientific Exhibit

request application blanks from N. S. Davis, III, 700 North Michigan Avenue, Chicago.

Committee on Scientific Exhibits: J. S. Templeton, Chairman; Cleaves Bennett (deceased); J. P. Simonds; R. S. Berghoff; N. S. Davis, III, Secretary.

AN EXPERIENCE DURING SIX YEARS OF HEALTH INSURANCE IN AUSTRIA

The medical society of the state of New York under date of February 1, 1935, released the following:

ALBANY, N. Y., Jan. 31. Stigmatizing the health insurance bill pending before the state legislature as a measure under which patients would get poor medical care, and physicians would degenerate into callous machines, Dr. Jacob L. Moreno of New York City, appeared here today (Thursday afternoon) to enter his protest against the law. He told members of the Legislative Committee, Medical Society of the State of New York, his experience during the six years under health insurance in Austria.

"All such schemes," he said, "operate to make physicians into mass-production machines turning out standardized treatment to patients. Every patient is an individual medical problem. Health insurance cheats both the patient and the doctor. In the name of trying to advance human welfare, such measures actually retard progress."

Dr. Moreno is director of research, New York State Training School for Girls, Hudson, New York, and adviser of the Subsistence Homestead Division, Department of the Interior, Washington, D. C.

"I know from experience with the actual reality," said Dr. Moreno, "that no matter how rosy the picture of ideal care for the poor that is presented by such schemes for health insurance, in practice they do not work. They cannot work, because they fail to take account of factors in human relations which are indispensable to the practice of the healing art.

"No physician," added Dr. Moreno, "is capable of properly treating the large number of patients sent him under health insurance. So he is forced to evolve some mass-production plan of operating his office to run people through his mill as fast as possible. A quick look, a stock

prescription, a pat on the back, and out the door.

"The 'rush' system of handling patients is inevitable. When the technique of getting them in and out fast enough is perfected, the doctor begins to lose that intangible 'something' which is vital to both himself and his patient—his morale. I do not know any doctor who remained long at this sort of practice in Austria who did not become hardened. A doctor's personal interest in his patient is essential. The response he makes emotionally to the trust reposed in him is important. If the patient comes to the doctor because of confidence in him and not merely because he is an insurance doctor, interest and insight are quickened. Mutual free choice is basic to good medical care.

"Every person's capacity to expand emotionally, and to sustain a confidential relationship, is limited. A physician may be able to maintain a keen mental activity while examining a few cases a day, but after his limit is reached, the power to sustain the faculties on a high plane wanes, until, finally, when the last case of a long line is reached, the patient becomes merely a serial number on a piece of paper. Health insurance forces on the doctor an utterly impossible human task—to sustain a genuine personal interest in all the individuals of a miscellaneous crowd at his door.

"The insurance doctor does the best he can, but patients suspect they would get better attention if they came to him during his private office hours when he could give them more time. This is a distinct and definite injury to the character of the physician. He must hurry through his insurance patients so that he can have plenty of his best self left to take care of his private patients. This is a corrupting influence. He knows he has not lived up to the highest tenets of his profession to give his best to every patient who comes to him. He has been forced by circumstances enacted by a law to do less than his best by some of his patients, and even his best with the few who see him privately gradually becomes not so good as it was once.

"Nobody who has not seen such schemes in practice as I have, can realize how odious they are. They destroy everything that makes the healing art effective. A new face comes between the doctor and the patient, that of an inspector

or supervising physician, or an insurance bureau bookkeeper, questioning this and that particular, without the intimate understanding derived from having seen and known the patient. At best, the real patient, the one for whom the mass production doctor is working, whom he must please if he is to live, is not the sick man, but an adding machine in the office of a bureaucrat who pays the fees out of an insurance fund. This man doesn't care whether the patient lives or dies, only how much he costs the fund. And his influence is exerted only in the direction of economy and other externals.

"Supervisors are needed in health insurance organizations. A good controller or supervisor who brings in many complaints against doctors is a good supervisor—he is headed for promotion because medical practice has now become a business instead of a profession. Thus do we destroy a truly healing relationship of which trust and confidence is the basis, and substitute a chain-store, cut-rate imitation, which corrodes curative values needed to heal the sick.

"The system which we now have in the United States is not perfect. But I know from personal experience that the conditions imposed by health insurance are far worse. Health insurance is a type of socialized medicine. It is impossible to socialize the doctor unless the business man, the banker, and the lawyer are socialized, too. Until the time comes, if it ever does come, when we have communism or some form of collectivism, health insurance simply will not work. Though it applies only to the lower income groups, those groups will always feel they are getting less than they ought to get, even if the doctors are men of quality having lucrative private practices in addition to their insurance practice. Like all half-way measures, it will fail, despite the well-meaning altruism of those who sponsor such legislation. They do not realize, as the physician does, who has practiced under such a system, how destructive it is to quality in medical care.

"Letters which have come to me recently from former patients in Austria state that conditions are no better now than when I left five years ago, but are worse, if anything."

The Legislative Committee is in session here in its semi-annual meeting, with its chairman, Dr. Harry Aranow of New York City, presiding.

STUDY OF ONE HUNDRED CASES OF JAUNDICE, WITH PARTICULAR REFERENCE TO GALACTOSE TOLERANCE

During the last three years Leon Schiff and Fanny A. Senior, Cincinnati (*Journal A. M. A.*, Dec. 22, 1934), studied a group of 100 patients giving particular attention to clinical manifestations, galactose tolerance and ability to excrete bromsulphalein. They determined the degree of jaundice during the course of illness by means of the icteric index and van den Bergh determinations and the presence or absence of complete obstruction by study of duodenal contents, urine and stools. They feel that laboratory studies, particularly the galactose tolerance test, may prove of great help in the diagnosis of some cases and lend confirmatory evidence in others. The technic of the galactose tolerance test that they employed was essentially that given by Shay and Schloss. The galactose tolerance test was positive (output of galactose exceeded 3 Gm.) in forty-nine of fifty cases of catarrhal jaundice and fourteen of fifteen cases of acute toxic hepatitis. A negative test (output of less than 3 Gm.) was obtained in all of twenty cases of obstructive jaundice. Negative tests were mostly obtained in cases of cirrhosis and neoplasm of the liver. The test appears of great value in differentiating acute (toxic or infectious) jaundice from obstructive (extrahepatic) jaundice. The galactose tolerance bears no direct relationship to the degree or duration of jaundice or to the amount of retention of bromsulphalein. In the later stages of acute intrahepatic damage it may remain positive when other tests of liver function have become negative. The test should be repeated when a discrepancy arises between clinical and laboratory observations.

LESIONS OF THE OPTIC NERVE AND RETINA IN PREGNANCY

Henry P. Wagener, Rochester, Minn. (*Journal A. M. A.*, Dec. 22, 1934), points out that the lesions of the retina and optic nerve which occur in pernicious vomiting of pregnancy indicate a severe grade of general toxemia that may prove fatal even if pregnancy is terminated promptly. Earlier and more frequent ophthalmoscopic examinations in cases of pernicious vomiting may serve to give timely warning that the pregnancy should be interrupted. The development of any type of retinitis in a case of hypertensive toxemia of pregnancy is an urgent indication for the termination of pregnancy, not only because of the danger to vision, but also because of the implied certainty of permanent injury to the general vascular system. In cases in which hypertension develops or increases while the patient is under observation, careful watch should be kept for angiospastic lesions of the retinal arterioles, either primary or superimposed on previous organic changes. If the integrity of the systemic arterioles is to be preserved, pregnancy should be terminated, if possible while the arteriolar lesions are still in the angiospastic phase, and certainly at the first indication of the onset of retinitis.

MEDICAL ECONOMICS

Developments in the line of proposed changes in the social order are so many and so rapid that it is difficult for one to keep abreast of the times. Undoubtedly the recent message of the President on Social Security is the outstanding item of importance of the last month. A rather careful reading of the same convinces the reader that definite changes are near at hand especially in regard to Unemployment Insurance and Old Age Pension. The exact nature of these changes will of course depend on the opposition which develops in Congress and makes revision necessary. It appears that the President has followed the recommendations of the Committee on Economic Security to a great extent.

While we as citizens are interested in these subjects, as physicians we do not care to discuss them. It is in the matter of health insurance to which he refers later in his message as follows: "I recommend the following types of legislation looking to economic security. 4. Additional federal aid to state and local public health agencies and strengthening federal public health service. I am not at this time recommending the adoption of so-called health insurance, although groups representing the medical profession are cooperating with the federal government in the further study of the subject and definite progress is being made." In the report of the Committee on Economic Security they state "We have enlisted the cooperation of advisory groups representing the medical and dental professions and hospital management in the development of a plan for health insurance which will be beneficial alike to the public and the professions concerned. We have asked the groups to complete their work by March 1, 1935, and expect to make a further report on this subject at that time or shortly thereafter."

These two statements should remove any doubt in the minds of medical men that great changes in the manner of practicing medicine are threatening at this time. It is fortunate that we have an additional six weeks to use our influence in this matter. But these six weeks should be used to the best advantage. We take for granted that the A. M. A. is using all its influence in this work. State Societies should and are presenting the subject to their Congressmen and the laity in an effort to show them that

such a change is not for the good of the patient. A study of the system of State Medicine in any of the European Countries will convince anybody that the grade of medical service is not improved by this method. Morbidity and mortality statistics of these countries suffer in comparison with those of the United States. Also the people are not satisfied with the system or the type of service rendered, but having no choice in the matter must continue to participate. Naturally subterfuges and tricks are referred to by the patients to receive increased attention and compensation. Refusal of the physician to cooperate with them in such plans lead to unpopularity and criticism, with diminishing income. All of this has a most depressing influence on the medical profession.

As individuals, it is our duty to study the question in all its phases so that we can talk with those of the laity who are interested in this subject and be able to answer their questions, as well as prove to them that such a system is not suitable for this country and will not result in better care for the poor and middle class. Many of the laity are interested and there is fertile fields in every community for work by all of us at Women's Clubs, Parent-Teachers' Associations, Rotary Clubs, Lions Clubs and Kiwanis Clubs. Of course, we can make it our business to convince our local member of Congress that such a plan is not desired or feasible in this country.

Recently a questionnaire was sent to the Mayors of about 500 cities and towns in Illinois to obtain their opinion and suggestions in regard to the medical care in their communities and what could be done to improve the same. Too few replies have been received to make any definite report but almost without exception they state that there is no criticism of the way the medical profession is and has been carrying on the past five years and most of the suggestions as to improvements have to do with the work of the supervisors of the Illinois Emergency Relief. We hope to have some very interesting data to submit in the near future. One thing is certain. The public is health conscious at this time and are eager for information on the subject and that is the propitious time for action.

The question of Group Hospitalization has been before the Illinois State Medical Society

for the past year. During the last six months a special committee of the Committee on Medical Economics has made an intensive study of this subject. They reported at the last meeting of the Council in Rockford. This report is included in this column. You will note that while they are unwilling to make a definite recommendation at this time, they laid down several fundamental conditions under which the plan could be tried. They will continue their study of this subject and more than willing to cooperate with any group of physicians who are considering the experiment in their city. It will be interesting to see how great the demand is for this service and how satisfactory it will be to both the recipients and the medical profession.

The lay press continues to present the question of medical service most of them in a critical manner with either a veiled or frank statement that State Medicine is the solution. Possibly these are spontaneous, but from the names of the writers and their prior records, it appears that they form part of a general plan of propaganda for so-called health insurance. It appears that none of such articles should remain unanswered. *American Mercury* is one of the few lay magazines, that has contained articles presenting the other side of the question. While we as individuals cannot hope to combat such articles, we can be so conversant with the subject that we are able to refute their statements to those who having read them wish to discuss the same with some member of the medical profession. Again, this Committee wishes to insist that every member of the Illinois State Medical Society obtain the pamphlets on this subject by the A. M. A. Read them and every other available article on the subject. It is to be hoped that in the near future, meeting will be held in each Councilor District of the state, at which outstanding men of the profession will address the meeting. When such a meeting is held, make every effort to attend and have questions ready to ask the speakers. As stated before there is work for each member of the society and the time has arrived to do this work.

E. S. HAMILTON, *Chairman,*
Committee on Medical Economics.

CURRENT LITERATURE

The review of current literature relative to the problem in Medical Economic leaves one in

doubt as to the actual facts relative to adequate medical care and, therefore, makes final judgment rather impossible at this time.

If as is stated in some of the current literature there are a large number of people in the United States who are not receiving adequate medical care and the statement made in other quarters that there is an over supply of medical men, then it seems perfectly evident that there is a problem that calls for some solution.

In an economic crisis, such as we have at the present time, there seems to be in nearly every field, a so-called over supply in the market. This is a situation primarily resulting not from over production at the present time, but from the lack of purchasing power by the great mass of American people. It would seem quite evident that if a situation of this type exists in the general economic problem of industry that the same thing might be true in the economic field of medicine.

It is quite evident from a survey that there is adequate medical care available for the American people in every community. This may be through the private practice of medicine, through various charitable organizations long established, and though Federal controlled hospitals, etc.

The problem then is not one of available medical care but one of purchasing power of the people who are in need of medical care. These problems exist at all times both in general economic problems and in that of medical economics. They both reach their high tide in severe economic depressions, and recede during periods of economic prosperity so that the study of the problem is not one confined only to the present situation, but should also cover those periods of economic prosperity. It seems quite impossible that we could have a tremendous decrease in purchasing power of the public in all other lines, and not have a marked decrease in their ability to purchase adequate medical care, and this is clearly evident by the fact that the increasing number of people on relief made it necessary for the Federal Government to approve a plan for the payment of medical service.

It would also seem apparent that the Medical Profession through its various channels are better prepared to render medical service to the American people than any other department in our social and economic structure because it was

the last to have to make demands from the federal fund for such care, and it is quite apparent from present obtainable information that the American people have had adequate medical care even during this depression. If it is true that during the periods of economic prosperity there were also a large number of people who could not have adequate medical care, as we appreciate that in its full extent then we have an entirely different problem than we have in this period of emergency. That problem it would seem without any question is largely one of inadequate pay even in the times of prosperity, and the attack of such a problem is not one than can be settled by the medical profession itself, but one that must be settled through the pay envelope of industry.

Most of the programs devised by the Federal Government during this period of emergency, inadequate and untried as they may be, have been forced upon the Federal Government by the collapse of industry and the economic order, creating an emergency situation to which not only millions of unemployed but industry itself looked to the Federal Government for relief. This situation is not common to the present economic crash but has existed in every economic depression before. It seems quite probable then that if we are not able to organize medicine and industry to balance the purchasing power of the public for adequate medical care, providing such conditions actually exist, then in that event some type of untried and experimental plan may be evolved through federal channels for the solution of this problem.

It would seem therefore that industry as a whole should be vitally interested in the solution of this problem, because if it can not be solved by the profession and industry, it will eventually lead to governmental attempted solution, and is bound to be the beginning of other types of social legislation to correct apparent evils in the lack of purchasing power of all of the other necessities of life. It can not be isolated from the whole economic picture because it is as much a part of the whole picture as are articles of food, clothing, shelter, education, etc.

R. F. PACKARD, Chairman of the Council.

THE SHORTCOMINGS OF HEALTH INSURANCE

During the past few months we have heard many murmurs from various sources that our government would insist on a program of health

insurance, or some form of socialization of medicine, at the next session of Congress. President Roosevelt appointed a Committee on Economic Security to make an intensive study of various subjects with the idea in view of stabilizing the future security of our citizens. It was stated when this committee was formed that their recommendations should be made to the President during December and that some of their recommendations may be used in the President's message to Congress.

This committee under the chairmanship of Miss Perkins, Secretary of the Department of Labor, selected some fifteen subjects which they considered of sufficient importance along the lines of future security as a basis for their study. Provisions for meeting the economic risks of illness was among the subjects selected, and was made a major study after they were besieged with letters, telegrams and personal calls from many proponents of health insurance. A director of study was selected, and a medical advisory committee consisting of eleven or twelve prominent men in medicine and its specialties, was appointed to discuss the subject of medical care in its relation to economic security.

This advisory committee held a conference in Washington recently which lasted three days. At the end of this conference it was generally agreed that further study of the question was advisable before any recommendation should be made. It is stated that although other conferences were in session at the same time, there were more visitors in the gallery listening in on the medical discussions, than could be found elsewhere among the conferences. President Roosevelt addressed those assembled at the conferences and although announcing that he was favorable to unemployment insurance, he did not recommend any form of health insurance, but his references to this subject were as follows:

"Whether we come to this form of insurance sooner or later on I am confident that we can devise a system which will enhance and not hinder the remarkable progress which has been made and is being made in the practice of the professions of medicine and surgery in the United States. At this time we are deciding on long-time objectives. We are developing a plan of administration into which can be fitted the various parts of the security program when it

is time to do so. We cannot work miracles or solve all our problems at once."

Under all systems of health insurance to be found anywhere, and we now have some twenty-seven civilized countries where one of these is in use, there is a definite mechanization of the practice of medicine. Physicians must do much clerical work, make out reports in duplicate, or triplicate, all of which consumes a large amount of his time. It is quite obvious that such work is detrimental to his professional well being, and he loses much of his incentives for development, study, and his usual observations along the line of medical progress.

Health insurance is not cheaper than our present plan of providing medical service. Although the statement has been made repeatedly that as high as 62% of the American people today are receiving no medical care, those of us who are engaged in caring for the ailments of the sick know that it is not true. It is extremely difficult to find in any community, indigents who are receiving no medical care, if they want it. Some people are still opposed to all forms of medical care, and although it is offered them, they actually refuse it.

The people who are talking the loudest for health insurance in this country are principally those who expect to profit under such a system should it be established. The people who would receive free medical care under it, those who would pay for it, the indigents who are unable under any conditions to buy medical care, are not asking for health insurance. Leaders in industry, business, labor, and the various professions are not asking for health insurance in any form.

Health conditions as shown by reliable statistics, are better in this country than they are in European countries which have had socialized medicine over a period of years. In those diseases which have generally been reduced both as to their mortality and morbidity in general, they have been conquered to as great an extent in the United States without it, as they have under health insurance elsewhere. It is therefore quite obvious that there is no health advantage gained through the establishment of any system of health insurance.

Taxation is a necessary component of health insurance, and the project does not lend itself like other forms of insurance, to actuarial accu-

racy. Statistics from European countries where health insurance is now applied either in full or in part, show conclusively that the cost for providing medical care to those who are the beneficiaries under it, is greater than the cost of providing adequate medical care by the former method where the patient alone is responsible for the bill.

The history of "Health Insurance" has proved that "sickness" is an indefinable condition which is often coveted by the insured person with no desire to get well. Under it, the period of convalescence is considerably increased, and there is a general tendency of insured workers to malingering, and actually be "sickness conscious", rather than health conscious.

Summarizing briefly the facts concerning health insurance, we can say:

1. The cost of medical care is not reduced.
2. The incidence of illness is materially increased.
3. The type of medical care given under it, is definitely inferior to that received when the physician-patient relationship is maintained.
4. Medical progress is deterred under health insurance.
5. Any satisfactory system of health insurance must necessarily mean increased taxation for all.
6. Judging from the experiences in those countries operating some system of health insurance, there is a general deterioration of both the practice of medicine, and the institution of medicine—affecting not only the physicians who spend their time caring for the sick and the injured, but also those whose lives are dedicated to research, and other developmental branches of the institution of medicine.
7. The type of medical care administered under health insurance is actually inferior to that given in private practice.
8. If unhampered by politics, the medical profession of this country can within a few years develop its own system of providing adequate medical care to all, with charges in proportion to each individual's ability to pay for same.

H. M. CAMP, *Secretary*,
Illinois State Medical Society.

REPORT OF COMMITTEE

Report of the sub-committee on the Study of Group Hospitalization to the Committee on

Medical Economics. Later accepted by the Council and ordered published in the *ILLINOIS MEDICAL JOURNAL*.

Considerable information on this subject has been garnered from various sections of the country, where group hospitalization is in practice, all of laudatory character. It would appear to this sub-committee that there are many points in favor of such a plan. However, we feel that there is some reason for hesitancy in recommending such a move right now. There are certain pitfalls in the form of schemes for socialization of medicine. Unqualified endorsement of group hospitalization might lend encouragement to an allied plan for group medical care at this moment of economic frenzy.

We suggest, however, that any community of members of our Society, wishing to inaugurate a group hospitalization plan receive hearty co-operation from this council, and whatever assistance we may be able to give, provided the specifications include the following tenets:

1. The plan must be acceptable to the local county society.
2. The majority of the Board of Control must be in the hands of the local county society.
3. The organization must not be for profit.
4. The plan must in no way involve medical service.
5. There must be no interference of the relationship between the patient and the physician of his choice.
6. The plan should be open to all hospitals in the community.

Respectfully submitted,

SUB-COMMITTEE ON THE STUDY OF GROUP
HOSPITALIZATION,
C. E. WILKINSON, *Chairman*.

METAPHEN IN GASTRIC ULCER

No other medicine should be used when giving Metaphen 1:500 by mouth in gastric ulcer and colitis, as it is incompatible with iodine and its salts, strong alkalies, acids and salts of all heavy metals.—C. M. Trippe, M. D., Asbury Park, N. J.

ALGER HEROES ARE EXTINCT

Gruff father to son—"Why don't you get out and find a job? When I was your age I was working for \$3 a week in a store, and at the end of five years I owned the store."

Son—"You can't do that nowadays. They have cash registers."—*Boston Globe*.

Correspondence

ILLINOIS SENDS HEALTH INSURANCE PROTEST TO PRESIDENT ROOSEVELT

January 12, 1935.

To His Excellency,
the President of the United States,
the Honorable Members of Congress, and
the Committee on Economic Security.

Preamble. The Illinois State Medical Society, through its Council, wishes to call to your attention certain phases of the proposed Health Insurance program, which may briefly but authoritatively explain why this body of 7,500 men is opposed to the experiment.

Proponents. Who are advocating Health Insurance? Who are urging its establishment? Not the indigent, for they cannot pay for it. Not the employed, for they prefer to choose for themselves how their money shall be spent and to whom paid. Labor Unions have not asked for it, neither the so-called "white collar class" nor the members of organized medicine, who are essential to its success.

The agitation for official health insurance has come from other sources. Since neither the persons who are supposed to benefit therefrom nor the medical men who must provide the service have been interested in promoting the project, there is serious reason to believe that the scheme would be detrimental to both.

Wherever Health Insurance has been introduced, little or no consideration has been given to the workers who were to become the patients or the physicians who were to supply the service.

The whole campaign has been interesting as well as depressing from a political standpoint, since it is questionable whether even the unselfish benevolence of mankind has done more good than harm by hasty interference with the natural evolution of social forces.

The Need. There is no evidence that a Health Insurance scheme is needed by or would benefit the people of the United States. Health conditions generally are far better in America than in any other first class nation, not excepting those where Health Insurance schemes have been fifty years in force.

Statistics published by the League of Nations show clearly that the United States had a lower general death rate and a lower infant death rate

in 1933, as well as a lower mortality and morbidity rate from diphtheria and tuberculosis than any other first class power for which data are available, as the following table discloses:

MORTALITY AND MORBIDITY, 1933

	All Infant Deaths		Diphtheria	
	Deaths Per 1,000 Pop.	Per 1,000 Births	Deaths Per 100,000 Pop.	Cases
United States	10.7	59	3.9	39
Germany	11.2	76	5.6	114
England and Wales..	12.3	63	6.3	117
Scotland .....	...	81	7.2	180
France	15.8	75	...	50
Irish Free State.....	13.6	65	12.9*	113
Poland	14.2	128	17.0*	52
Illinois	10.5	49	1.7	22

*1932.

Health improvement, moreover, has been more rapid in the United States than in any other nation except some with small homogeneous populations, and not a few of our states have health records which are unsurpassed. Such an improvement is convincing evidence that the system of medical practice and public health service prevailing in America is superior to any to be found elsewhere.

Private Organizations. Such ventures cannot be administered by independent companies because—the indigent class have no money for Health Insurance and the low income class can be cared for only imperfectly by this system, as crucial experiments in other nations have shown. No system of sickness insurance is or can be supported entirely by the contributions of the beneficiaries nor yet with the help of employers. If not compulsory, the young and healthy will not join and the old and feeble, if accepted, will raise the cost to a prohibitive degree, and if rejected will remove the protective feature and exclude those in most need.

Taxation is a necessary component, and the project does not lend itself like other forms of insurance to actuarial accuracy.

Federal Subvention. Federal control is alone possible, and this aspect of the plan presents many difficulties. The expense is enormous—in Germany \$300,000,000 and in Great Britain \$160,000,000 per year is spent for inferior work and on relatively small populations. In Germany 35,000,000 insured pay four times as much for medical care as 30,000,000 not insured. If all workers in the United States were insured, the cost would be from two to three billions of dollars per year. If the unemployed and other

classes are included, as they must be to give the scheme any value and completeness, the expense may easily rise to as much as four billions of dollars. Fifty per cent. of the income is usually accepted as the amount to be supplied by the government for its share of this expense in management, and if the indigent are added, the whole burden should be on Federal shoulders.

The difficulties arising from the administration of Emergency Relief in the United States will be multiplied many times over in the attempt to develop, rule and guide a uniform insurance plan among the native, the naturalized and widely diverse state populations, some of which have as high as fifty per cent. colored voters without taxable property (Mississippi and South Carolina), while even the various counties of many highly advanced commonwealths will not consent to regimentation. Many years must elapse before the infinite complexities of this nation can be conducted from a single center.

Course of the Enterprise and Consequences. Ultimately the effort results in an enormous bureaucracy. In Germany there are 2,000 more insurance administrators than physicians in Krankenkassen. The political control is injurious to the system, unfair to the patient, disheartening to the doctor and destructive to the proper practice of medicine.

The conduct of a compulsory and often almost universal health and medical service placed in the hands of a lay board, or commission, means that this vast project is entrusted to people wholly unfitted for the task and unfamiliar with its problems. Furthermore, such organizations soon become so powerful financially and politically that they cannot be altered or dislodged, as welfare workers are well aware.

When benefits are distributed to individuals through an extensive administration group with numerous employees, the combination quickly becomes a gigantic and extremely powerful political machine—a plaything of politics.

This very natural result advances the directoral body in power, but always affects the quality of medical service injuriously. Restrictions on scientific practice are imposed by lay administrators which benefit the politics and the treasury of the organization rather than the patient.

Effects of This Speculation Upon the Patient. Sickness insurance is a source of degradation and mental degeneration to the insured.

The patient malingers, or is suspected of it, and his feelings are hurt by the inquiry, or antagonized by discovery. Much time is wasted in bringing this fraud to light. Sickness insurance creates neuroses and prevents their proper and efficient treatment. The greed to get something back for money spent is always present among the insured and urges them to seek aid. Prescriptions, expensive and often not needed, are regularly demanded and either the patient is served or the doctor is criticized, even cashiered.

Sickness is often an economic problem rather than pathologic. Sickness insurance is a form of deadly infection which creates a constantly increasing amount of illness and emasculates the individual by depriving him of his courage, sense of responsibility and manhood. He becomes fundamentally a chronic and demoralized invalid.

In England fourteen out of one hundred claimed sickness benefits in 1921 and this grew to twenty-three in 1927. With unmarried women the proportion grew from twelve to twenty-one and for married women from nineteen to thirty-eight out of each hundred applicants.

According to estimates, from sixty per cent. to seventy-five per cent. of those who come for medical attention do not need it. If told so, they are displeased and flock to quacks who must be paid for their services. In only five of nineteen countries having National insurance were the patients satisfied with the service.

The occasional lack of adequate medical care, furthermore, results oftener from the indifference of the people than from economic stress. The Metropolitan Life Insurance Company learned from a house-to-house canvass of several thousand families that the majority of parents who had failed to have their children inoculated against diphtheria recognized its benefit and believed in preventive medicine but neglected to have it done. Would health insurance correct such heedlessness?

The entire history of health insurance has proved that "sickness" is an indefinable condition which is often coveted by the insured person with no desire to get well.

Effects Upon the Practice of Medicine. The practice of medicine is mechanized unduly, personal responsibility diminished, diagnosis crippled, research hampered and so much time wasted on the urgencies of the would-be sick that none is left for the really disabled.

The efforts of societies and lay boards are directed everywhere toward the destruction of the professional status and its replacement by an industrial contract.

The question of a free choice of physician is antagonized and restricted by the insurance administrator since only those doctors will be chosen, he contends, who are liberal with certificates of incapacity for work and generous with drugs, for all insurance schemes lead to expensive over-medication. German physicians report that the insured patients will use ten times as much medicine as the uninsured.

Effect Upon the Physicians. The insurance code demands constant expansion of medical service, while the management at the same time fights adequate medical compensation. The doctor is over-busy. He has no time to renovate his ideas by consulting the monthly records of medical progress.

The personal relation of patient and physician is destroyed and a purely cash connection retained with the organization. Commercialism is rampant and professional control of the medical problem eliminated. Insurance service is always second class, since the better practitioners will not apply. In only six of the nineteen countries having National insurance were the doctors satisfied with the service.

In view of these facts, the medical profession of Illinois feels that more prolonged study is required for the proper solution of this medical problem, and for the present the members of this Society desire opportunity to practice medicine as hitherto for the best interests of the public without domination by laymen, either social service workers, political appointees or any others who have no experience with difficulties inherent to medical practice.

In conclusion, let it be emphasized by repetition that all available statistics demonstrate that health conditions prevailing in Illinois are distinctly superior to those in the nation at large, and that the latter, as previously pointed out, easily surpass those in nations where Health Insurance schemes have been adopted.

Respectfully submitted,

ILLINOIS STATE MEDICAL SOCIETY,

CHARLES B. REED, M. D., Chairman.

CHARLES J. WHALEN, M. D.

JOHN R. NEAL, M. D.

IN MEMORY OF DR. CLEAVES BENNETT

We, the members of the Council of the Illinois State Medical Society, recognizing our obligation to physicians who have given freely of their time and ability to uphold the standards of the medical profession, and have loyally supported its organization, have occasion at times to pause and give due consideration.

The Illinois State Medical Society requires and has always had able leadership to direct the activities of its organization, but occasionally the "Grim Reaper" ruthlessly selects one of its outstanding men. This is particularly true in the case of Dr. Cleaves Bennett who answered the summons on December 24, 1934, at a time when strong men are needed in the medical profession.

Dr. Bennett was an outstanding man in the medical profession. His preparation at the University of Illinois laid a broad and sure foundation for his life's work. Always sincere and fearless, he ever commanded the respect and confidence of his colleagues. He did not seek preferment in office, but was ever keenly alive to the best interests of his profession. Fulfilling its highest ideals, he grew ripe in experience and fruitful in service. Serving seven years as Councilor from the Eighth District, he was given the honor of chairman of the Council for two years. His leadership in that important office was constructive and his judgment was sound.

By the untimely death of Dr. Cleaves Bennett, the State of Illinois has lost an honored citizen; the Illinois State Medical Society, an able advisor; the medical profession, a conscientious worker; and humanity, a friend.

Words cannot always express our thoughts at such times, but we wish to place on record that we admire him for his broad-minded charity and the integrity of his character; respect him for his candor, his sincere and direct address; honor him for his dependable judgment and love him for those strong and sterling qualities that distinguished him, a man.

We respectfully recommend that these sentiments be given a permanent place in the records of the Council of the Illinois State Medical Society and that a copy be sent to the bereaved

widow as an expression of our deep and sincere sympathy for her in her great loss.

J. G. NAGEL,

J. S. TEMPLETON,

C. E. WILKINSON,

Committee.

MAYOR LA GUARDIA ON THE SPOT

The *New York Physician*, December, 1934, takes the New York Mayor to task. We quote:

MAYOR LaGUARDIA ON THE SPOT

By "A Doctor"

The Honorable Mayor, Fiorello H. LaGuardia, appeared in all his majesty before a meeting at the New York Academy of Medicine on December 6th and brought forth words which certainly were exceedingly irritating to a number of those present and even more irritating to the thousands of doctors who read in the newspapers the next day what he had to say. Comments such as these should have been answered at the meeting but there was no time for any doctor to get up to defend the medical profession so that it is necessary, at this late date, for some few of us to express our views.

Mayor LaGuardia is anxious to see the medical profession socialized. He is anxious to have every doctor placed on a salary basis. He wants all of us put in our little niche and told just what we can do and can not do. He does not tell us that if that time ever comes, the doctors of this country will be under complete political domination. Mr. LaGuardia is a politician and certainly he, if anybody, should know that one has to play the political game, he will stand to fall according to how near he can get to those who have the political power in their hands.

We are sick and tired of having Mayor LaGuardia and various other lay groups of people telling the medical profession what they should do. Certainly the profession in the past has shown that it can maintain itself successfully in spite of the various inroads that have been made upon it. And, strange as it may seem, they have been able to organize along scientific lines until the American medical profession is looked at with envy by groups of physicians in other countries. Is it not about time that we had an economic code which would meet with the approval of organized medicine and also with the approval of the public? As long as there are so

many projects with capital letters which are working for the public good, we should also have our capital letters. Let us have a National Medical Recovery Act—N. M. R. A.

We wish that our friend the Mayor were a doctor and dependent upon his income from practice to make a living for himself, his wife and two children. He might look at things from a different angle. He might be one of these men who had had a fair practice among people in moderate circumstances who had lost almost everything they had. And he might hold a city hospital dispensary job for which he was receiving not one red penny. Perhaps, under these circumstances he would like to be subsidized by the State but how would he feel when the time came that some other physician got a better job through his political influence?

MEETING OF AMERICAN CONGRESS OF PHYSICAL THERAPY

The American Congress of Physical Therapy announces a one day session of its Mid-Western Section, to be held in the Auditorium of the Service Memorial Institute, Madison, Wisconsin, Tuesday, March 12, 1935.

The morning session will be devoted to hospital clinics and the afternoon session to scientific papers. The evening program will be conducted under the joint auspices of the section and the Dane County Medical Society.

The Program is as follows. Clinics:

Wisconsin General Hospital, 9-10 a. m.—Physical Therapy in Fractures, James Jackson, M. D., Madison.

Wisconsin General Hospital, 10-11 a. m.—Physical Treatment in Postural Defects, Helen Denniston, M. D., Madison.

Children's Hospital of Wisconsin General Hospital, 11-12 a. m.—Physical Therapy in Poliomyelitis and in Postoperative Cases, J. C. Elsom, M. D., Madison.

Afternoon Session, 2 p. m.

Physical Therapy in Relation to Orthopedic Surgery, F. H. Ewerhardt, M. D., Assistant Professor of Physical Therapeutics, Washington University School of Medicine, St. Louis.

Management of Cancer of the Nasal Accessory Sinuses, Francis L. Lederer, M. D., Professor and Head of the Department of Laryngology, Rhinology and Otology, University of Illinois College of Medicine, Chicago.

Physical Therapy in Postoperative Conditions, Robert E. Burns, M. D., Associate Professor of Orthopedic Surgery, University of Wisconsin Medical School, Madison.

Status of Electrosurgical Resection, H. C. Rolnick, M. D., Professor of Urology, Loyola University Medical School, Chicago.

Physical Therapy in Relation to Arthritis, John

Stanley Coulter, M. D., Associate Professor of Physical Therapy, Northwestern University Medical School; Council on Physical Therapy, American Medical Association.

Physical Therapy in Relation to General Surgery, Arnold S. Jackson, M. D., Jackson Clinic, Madison.

Evening Session 8 p. m.

Modern Concepts of Physical Therapy in Medicine and Surgery, Harry E. Mock, Sc. D., M. D., Associate Professor of Surgery, Northwestern University Medical School; Chairman Council on Physical Therapy of American Medical Association.

Aids in Rehabilitation, F. J. Gaenslen, M. D. (Milwaukee, Wis.), Professor of Orthopedic Surgery, University of Wisconsin Medical School, Madison, Wis., Council on Physical Therapy, American Medical Association.

For program, address Marion G. Smith, Executive Secretary, American Congress of Physical Therapy, 30 North Michigan Avenue, Chicago, Illinois.

TRANSACTIONS OF THE ILLINOIS STATE MEDICAL SOCIETY FOR SALE

We are in receipt of a letter from Phelix J. Underwood, M. D., executive officer, Mississippi State Board of Health, Jackson, Mississippi, which reads as follows:

Dear Editor: In trying to locate old copies of The Transactions of the Mississippi State Medical Association, I found that B. H. Murphy, bookdealer, 407 Church Street, Nashville, Tennessee, has the Transactions of the Illinois State Medical Society for the following years: 1878, 1879, 1881 and 1882.

I thought you might like to secure these copies.

ILLINOIS EMERGENCY RELIEF COMMISSION'S PRESENT MEDICAL PROGRAM

The physician has two distinct interests in the present administration of relief in Illinois. As a civic minded citizen, he is naturally interested in the efficiency of administration and in the adequacy of relief. As a professional man he is particularly interested in those phases of the relief program which bear upon the furnishing of medical aid to those who are being assisted.

A consideration of the present program of the Illinois Emergency Relief Commission shows that these two interests of the physician are inter-related. Consider first his interest as a professional man. The Illinois Emergency Relief Commission's present medical program, which was set up in conformance with the basic principles of medical relief developed by the Federal Emergency Relief Administration, provides for the furnishing of medical aid through what might be termed normal channels. The actual program was developed in cooperation with an advisory committee of the Illinois State Medical Society which is actively assisting in its administration. The patient selects his physician just as he would were he supporting himself through gainful employment. This characteristic of the medical program is important in a consideration of the entire relief program for it is symptomatic of the basic

principle upon which all relief is administered by the Illinois Emergency Relief Commission.

The Commission, in furnishing aid to the unemployed, has taken as a working principle that the family unit should be preserved and that this unit should be maintained in its normal relations to society, as far as this can be accomplished. In line with this principle, it not only furnishes relief to families as units, it also preserves many of the normal functions of family life. For example, it permits families receiving direct relief to obtain much of the food they require through local groceries and markets, and it enables many of the families it aids to earn their budgetary needs through gainful employment on work relief projects. It might be said in passing that more than 100,000 family heads are employed on work relief projects each month.

A study of the financing of medical relief in Illinois indicates certain definite trends in the relief movement. The present medical program was instituted about a year ago. In April of 1934, seventeen counties, exclusive of Cook, were participating. In these counties the cost of medical relief, exclusive of administration, was \$23,556.69. In December, 1934, eighty-six downstate counties were participating at a cost of \$126,930.66. These figures do not mean that relief is being given indiscriminately or that there have been serious epidemic conditions in a large number of our counties. They do, however, point to the definite fact that as the period of depression increases, the needs of relief families also increase, and that the Illinois Emergency Relief Commission has been obliged to assume increasing responsibilities.

The same has been true in other fields of relief administration. The problem of relief administration has grown increasingly complex. In the early stages of the depression, most families in need required the simplest kind of aid. As their period of enforced idleness extended, they needed more varied relief. In the meantime, local public and private funds became exhausted and an increasingly large proportion of the relief load had to be borne through state and Federal funds. The policy of financing medical aid is an example of this condition. During the early stages of the depression, the bulk of medical aid was furnished by members of the medical profession on a voluntary basis. Certain forms of it were financed by local governmental units. As the period of unemployment continued there became the necessity of developing some plan whereby physicians might be compensated for treatment given the unemployed who were receiving relief. In other fields, the necessity for further development of the relief program was necessary. The combined results of these various factors has been an expansion of the relief program coupled with the necessity of maintaining rigid controls over the various funds being used to finance it.

In its actual administration of relief, the Commission has adopted the policy of employing on a merit basis persons specially qualified for the type of work they are doing. Again, the medical program might serve as an example. It makes medical referrals to licensed practitioners, and in maintaining local con-

trols works in cooperation with committees of the various county medical authorities. In the actual administration of direct relief, it employs persons who by training and experience are familiar with the problems involved in social welfare. In other phases of its administration it also adheres to this principle. Its food budgets are developed by nutritionists in cooperation with persons in direct touch with produce markets. It has sought engineering aid in the development of its work relief program and its funds are under the control of qualified accountants. This personnel set-up with its recognition of individual merit has enabled the Commission to maintain a rigid control over its expenditures and over case loads. In this connection, it should be pointed out that the increases in relief loads throughout the state during the fall and winter months are in all cases considerably below the normal seasonal increases for these periods.

The foregoing explanation of the operations of the Illinois Emergency Relief Commission are given here because the members of the medical profession have a special interest in welfare activities in their state and the administration of relief is the most outstanding operation in this field. It is essential that members of the profession know the basic principles under which relief is administered and that they realize that the medical program is an intricate part of the Commission's program and that the basic principles of relief administration are embodied in it.

Wilford S. Reynolds, Executive Secretary,
Illinois Emergency Relief Commission.

FLAT RATE FEES CONDEMNED

We quote the following from the *Detroit Medical Times*:

The House of Delegates of the Michigan State Medical Society at its 1933 meeting studied the problem of institutions charging flat fees for combined hospital and medical services. The following resolution was presented condemning the practice of flat rates as a system which would result in a lowering of the quality of service given the public. Too often do flat-rate-fee patients receive the service of internes and residents when they believe they are receiving medical attention from staff members; many people also erroneously believe that the payment they make to the institution includes a fee to the physician; few realize that the entire flat-fee charge goes to the hospital.

The Michigan State Medical Society resolution on this abuse is as follows:

"WHEREAS: Hospital Insurance has been, is being and will be promoted by various hospitals, companies and groups, therefore

"Be It Resolved: That members of county medical societies be requested to decline to render service under these policies that also include professional care unless the remuneration for services is approved by the county medical society and the plan or insurance provides for free choice of physician and hospital, and

"Be It Resolved: That any member who violates these conditions shall have his membership terminated

and be no longer eligible for membership in his county medical society, and,

"Be It Resolved: That a copy of this resolution be sent to the officers of every County Society and hospital superintendent."

WHO HAVE BEEN THE ADVOCATES OF SICKNESS INSURANCE?

The most significant general fact is that in no country have either the physicians who are to give the service or the proposed beneficiaries of that service ever asked for it. In most countries its introduction was opposed by both groups. In a few countries in recent years, where voluntary insurance societies had been organized among laborers and found themselves in financial difficulties, these societies were able to secure the support of their members and sometimes of the political parties of labor for state subsidies and then for a compulsory system. The demand in these cases does not appear to have come from the membership but from the officials of the societies that were in financial difficulties and from the labor politicians who saw in the societies an extensive political machine. The first advocates of sickness insurance have almost always been social workers and philanthropists. These groups and individuals see in sickness insurance a simplification of their work in providing medical relief. Neither are they blind to the fact that the introduction of a system of sickness insurance will involve the employment of large numbers of such social workers.—From "Sickness Insurance Catechism."

A. M. A. SPECIAL MEDICAL BROADCAST PROGRAM

The American Medical Association will broadcast on a special program arranged through the courtesy of the National Broadcasting Company over a network of stations, beginning at 6 p. m., eastern standard time, Monday, February 18. The program will include music and three speakers from among physicians in attendance at the Annual Congress on Medical Education and Medical Licensure, meeting in Chicago on that day. The speakers and their topics are as follows:

Advancement of Medical Education, Walter L. Biering, M.D.

The Prolongation of Life, Ray Lyman Wilbur, M.D.

The Battle Against Tuberculosis, Kendall Emerson, M.D.

EDUCATIONAL COMMITTEE

January Activities

VIVISECTION:

As vivisection is a subject demanding much attention at this time, the Educational Committee has supported the medical scientists in bringing to the public true information concerning the laboratories and the results of animal experimentation. Through the Committee it has been possible to arrange programs, with speakers from the medical schools, to appear before high school

students, men's clubs, women's groups, church societies, Y. M. C. A.'s.

HEALTH INSURANCE:

Organizations are beginning to ask questions about Health Insurance and Socialized Medicine. Package libraries have been compiled for physicians and a number of speakers have been scheduled to address lay groups on this important subject.

SCIENTIFIC SERVICE:

14—Scientific speakers were scheduled to give programs in

Scott County, Iowa
Rock Island County
Will-Grundy County
Kankakee County
Paris Hospital Staff
LaSalle County
Whiteside County
Warren County

298—Notices were sent out to doctors announcing the LaSalle County Medical Society meeting.

49—Newspapers received a story of this meeting.

212—Notices were sent to physicians announcing the January meeting of the Jefferson-Hamilton County Medical Society.

282—Notices were sent to physicians announcing the January meeting of the Whiteside County Medical Society.

57—Newspapers received a story announcing the Whiteside County Medical meeting.

129—Notices were sent to physicians regarding the Randolph County Medical Society meeting on January 24th.

220—Physicians were sent invitations to attend the Bureau County Medical Society meeting.

54—Newspapers were sent stories of the Bureau County meeting.

Notices were sent out to newspapers announcing scientific programs given by Chicago Medical Society and the following branches: Northwest, Calumet, Douglas Park, North Shore.

RADIO:

25—Radio talks were given during the month from stations WGN, WAAF, WJJD and WBBM. The manager of radio station WBBM (Columbia Broadcasting Company) has asked us to sponsor a program every other Wednesday from 12:45 to 1:00 o'clock. These programs, which began on January 23, will be continued indefinitely.

Requests have been received during the month from our audience in Illinois, Iowa, Michigan, Indiana, Wisconsin, Missouri.

At the present time the Committee is arranging programs for the radio covering a total of sixty minutes each week. The Educational Committee probably is given more time over the air than any other organization in the state and we are indeed grateful for this opportunity of bringing correct information to the public.

Radio station WGN sent the Committee a letter

from the principal of schools at North Manchester, Indiana, asking that he be put on the mailing list to receive copies of all health talks given from that station to be used as reference material by the physiology students.

SPEAKERS BUREAU:

40—Health programs were arranged and speakers secured to give popular talks in nineteen different cities of Illinois. These talks were presented by members of the Illinois State Medical Society. A number of health lectures were arranged for high schools, the largest assembly numbering 2,000 boys and girls.

Some groups seem to like the idea of having series of lectures on popular health subjects. The committee has been asked to plan such programs for the Springfield Y. M. C. A., Central Y. M. C. A. of Chicago and Wilson Avenue, Englewood, Sears Roebuck branches of Chicago, the Lake College of Commerce of Waukegan.

LIBRARIES:

137—Libraries in Illinois are now receiving every week from the Educational Committee, health articles on prevalent conditions or subjects of current interest for posting on bulletin boards and for filing with reference material.

PRESS SERVICE:

1210—Press releases during the month of January. The clipping service to which the Educational Committee subscribes indicates that the material is widely used throughout the state, but also shows that it could be increased.

Articles were written and approved for release on the following subjects:

"Why Do Feet Hurt?"

Silver Used as Medicine.

Your Gall Bladder.

About Cancer.

Periodic Physical Examinations.

MISCELLANEOUS:

Package libraries compiled for clubs and for physicians.

Information on the work and set-up of the Speakers Bureau supplied the American Bar Association.

Outline of radio programs and policies furnished district medical society of South Dakota.

Information on Speakers Bureau supplied for publication in the handbook of the Illinois Congress of Parents and Teachers.

1,055—Notices, letters, etc., mimeographed for the Woman's Auxiliary.

Special service to Chicago Medical Society in promoting the January meeting for the laity:

Letters and posters to Chicago ministers.

Letters sent to doctors with cards to be mailed to patients.

Letters to women's clubs and Parent Teacher Associations.

Announcements and posters to all clubs of prominence.

Stories to all newspapers in Chicago.

Respectfully submitted,

JEAN McARTHUR, Secretary.

MAYO FOUNDATION PROGRAM

A special program of lectures and demonstrations in medicine will be held under the direction of The Mayo Foundation from March 4 to 8, inclusive. Mornings will be devoted to surgical and medical clinics. In the afternoons and evenings symposiums will be conducted on urology, acute abdominal conditions, pediatrics, gastro-enterology, the thyroid and parathyroid glands, and dermatology. In addition, two clinico-pathologic conferences will be held. On Friday evening, March 8, the Minnesota Trudeau Society will hold an open meeting.

While these programs are arranged primarily for the Fellows of the Foundation, visiting physicians are invited to attend.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission has announced an open competitive examination as follows:

JUNIOR MEDICAL OFFICER (INTERNE)

St. Elizabeth's Hospital

Applications for the position of Junior Medical Officer (Interne) at St. Elizabeth's Hospital, Washington, D. C., must be on file with the Manager of the Fourth U. S. Civil Service District, Washington, D. C., not later than February 18, 1935.

Two types of internship are offered, as follows:

(a) An accredited internship of two years (American Medical Association classification 1), consisting of a rotating service of four months of surgery, four months of acute medical service, four months of chronic medical service, six weeks of obstetrics (affiliation), six weeks of pediatrics (affiliation), three months of general laboratory work, and six months of psychiatry.

(b) A postgraduate internship of one year in psychiatry (American Medical Association classification 2). For this internship physicians who have already had an accredited internship are desired, although applications from those who have not had an accredited internship will be accepted.

Applicants must have been graduated from a medical school of Class A standing with the degree of doctor of medicine.

Applications will be accepted from fourth-year students in schools which require a year of internship before granting the M. D. degree (5 years in all), as senior students to serve the interne year, and from senior students in other schools subject to their furnishing proof of graduation during the existence of the eligible register.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class,

or from the United States Civil Service Commission, Washington, D. C.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission has announced open competitive examinations as follows:

Principal Pharmacologist.

Senior Pharmacologist.

Pharmacologist.

Associate Pharmacologist.

Assistant Pharmacologist.

Applications for the positions named above, for employment under the Food and Drug Administration, Department of Agriculture, must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than March 11, 1935.

The entrance salaries range from \$2,600 a year for the assistant grade to \$5,600 a year for the principal grade, subject to a deduction of not to exceed 5 per cent during the fiscal year ending June 30, 1935, as a measure of economy, and also to a deduction of 3½ per cent toward a retirement annuity.

Certain specified education and experience are required.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class, or from the United States Civil Service Commission, Washington, D. C.

LEGISLATIVE ACTIVITIES AND THE WOMAN'S AUXILIARY

It seems quite probable that the coming months offer the greatest opportunity for usefulness since the Woman's Auxiliary to the Illinois State Medical Society was organized in 1927.

The objects of the Auxiliary as stated in its constitution are:

1. To assist the Illinois State Medical Society in the advancement of the prevention of disease.
2. To aid in securing better legislation indicated in the pursuance of these ends.
3. To do such other supplemental work as shall be determined from time to time by the Medical Society in the advancement of professional interests.

It is quite evident that if we as an auxiliary expect to assist the Illinois State Medical Society in the advancement of the prevention of disease and to aid in securing better legislation to the pursuance of these ends, we must first inform ourselves.

To be convincing one must be accurately informed and with this in view your state program chairman has prepared and sent to each auxiliary excellent program suggestions, which will, if carried out, aid in correcting misinformation.

If our greatest worth to the medical profession be in helping to educate and mold public opinion then we probably shall not want for a field of labor during the coming months. The President in his message to the

present Congress assured his listeners that in a very short time he would send to Congress recommendations which would cover, among other things, benefits for maternity care and for other aspects of dependency and illness. Legislation proposed to carry out these recommendations must necessarily follow and quite probably our Woman's Clubs and similar organizations will again be asked to endorse legislative measures designed to play upon the sympathies of the uninformed.

We are indebted to Dr. John R. Neal, Chairman of the Legislative Committee of the Illinois State Medical Society, who, upon request, kindly prepared the valuable suggestions regarding Illinois state legislation which are appended.

URGENT WORK FOR THE WOMAN'S AUXILIARY

There is work ahead for the Woman's Auxiliary of the Illinois State Medical Society, plenty of work and of the most constructive character. Of pressing urgency at the moment is the matter of animal experimentation, ordinarily referred to as vivisection. The privilege of animal experimentation is of vital importance to progress in medicine. That privilege is under challenge by the anti-vivisectionists who are supported in their program by an annual income of millions of dollars.

At the present session of the Illinois General Assembly, a bill prohibiting animal experimentation, at least on dogs, will be introduced. Similar bills will be introduced (if not already before legislative bodies) in thirty-two (32) other states this year. The next step in this national movement, if the program succeeds this year, will be to amend the Constitution of the United States so as to make animal experimentation illegal in America. This has been the cause of fanatical legislation in this country.

These bills will be pushed with all the vigor that money and high caliber lobbyist can command. Perhaps never before has pressure in favor of anti-vivisection measures been equal to that which is being exerted this year on legislative bodies. Whether or not any of this legislation succeeds the movement will not die down with the end of the legislative season. The anti-vivisectionists have financial resources from the income of heavy endowments. The movement will therefore continue indefinitely in the future. There will be no cessation of effort.

This situation makes necessary the marshaling together of all available strength on the part of the friends of medicine, of science and of progress against disease. These forces must be organized to function permanently and efficiently.

The Woman's Auxiliary of the Illinois State Medical Society has the opportunity of doing effective work in connection with this particular problem, as well as in respect to many other anti-medical movements, that are sure to arise. In the first place there should be organized an active woman's auxiliary in connection with every county medical society in the State. These auxiliaries should meet regularly and discuss the problems that face the medical profession, especially such things as anti-vivisection and the socialization of medicine.

Secondly, the members of the woman's auxiliary

should make it their business to join the local woman's club, the local parent-teacher association, the local chapter of the American Association of University Women, the local Business and Professional Women's Club, local women's political clubs and every other worthwhile organization open to membership by women. At least one representative of the auxiliary should be an active member of each organization of consequence in the community.

Thirdly, the members of the auxiliary should initiate, when necessary, the appointment of legislative committees in the various women's organizations and make it their business to see that some representative of the auxiliary is a member of the legislative committee. The function of this committee would be to keep itself informed on important legislative matters and to guide the thought of the organization along sound lines. The representative of the auxiliary should make it her special duty to keep informed about legislation that concerns the medical profession and see that appropriate committee action is taken. Information and guidance along this line can always be secured promptly from the Legislative Committee of the Illinois State Medical Society.

An organization of the character outlined would open up to the medical profession and all friends of scientific thought and progress a channel through which a powerful influence over public opinion could be exercised.

Members of the organized medical profession in Illinois have not been idle on the problem of animal experimentation. They have already laid the groundwork for effective opposition to anti-vivisection efforts. It is probable that a bill for the regulation of animal experimentation will be introduced. This counter movement will require a united front on the part of the friends of medical science. Organized effort on the part of the auxiliary will be important.

Success of the friends of medical science in Illinois would have a powerful influence on the trend of legislation in other states.

It seems almost superfluous to reiterate the reasons why animal experimentation is important. The State Department of Public Health recently published data which show that the use of insulin saves the lives of at least 170 young people annually in Illinois and greatly prolongs the lives of hundreds of others. The discovery of insulin resulted from experimentation on dogs and could not very well have been discovered in any other way. The evidence that 170 people are saved annually in Illinois is found by comparing the number of deaths from diabetes among people under forty-five years of age in 1923, the year after insulin was discovered but before it came into general use, and in 1933 after insulin had become an established factor in the treatment of diabetics.

At the present time experimental work of the most promising character looking toward the control of peptic ulcers is being done on animals in the research laboratories of Illinois. To prohibit the use of dogs for experimental purposes would stop this vital research activity and perhaps close the doors of progress forever in this field.

Literature relating to animal experimentation and its importance to medical science may be obtained from the State Department of Public Health at Springfield, or from the Educational Committee of the Illinois State Medical Society, 185 North Wabash Avenue, Chicago, or from Dr. C. I. Reed, College of Medicine, University of Illinois, 1853 West Polk Street, Chicago.

The immediate and pressing job of the auxiliary is to organize itself along the lines suggested and be prepared to function effectively in respect to the legislative problem of animal experimentation as well as in connection with other matters that are sure to arise. Action on matters relating to legislation should be guided by the Legislative Committee of the Illinois State Medical Society.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Work for the Year

1. Familiarize yourself with Medical Legislation program.
 2. Educate the lay as to the value of Organized Medicine.
 3. Educate as to the effect of State Medicine on public.
 4. Aid in exposing the misrepresentation carried on by cure-all companies, especially over the Radio.
 5. When the doctor's fee bill is criticized as being too high, kindly remind the people with reference to the amount of charity work the doctors give.
 6. Stress Public Relations.
 7. When medical subjects are to be discussed in clubs and lay organizations see to it that a physician of merit is the speaker.
 8. Place *Hygeia* in schools, high schools, libraries and county or district schools.
 9. Place authorized Medical Books in your libraries. If you can't buy them maybe some of the Doctors would donate from their library a volume. See that a space is given to Medical Books.
 10. Compiling a list of public reading rooms where we can place *Illinois Health Messenger*.
 11. Use films in schools and clubs furnished through Illinois State Health Department, free.
 12. Use speakers Bureau of Illinois State Medical Society.
 13. Read the Journals, State and National.
 14. Know both sides of the question.
 15. Know the merits of vivisection.
 16. What has anti-vivisection given the public in health measures?
 17. Distribute booklet being prepared by Economic Committee of State Society.
 18. Know the Doctors' wives in your community and create a friendly spirit among them.
 19. Cooperation, unity of Auxiliary members, knowledge and sincere understanding will make strength with which we can stand behind our husbands and their difficult problems, and be of great assistance to them and the Medical Society. Can we? We will!
- The above are suggestions I am asking the County Auxiliary to carry out this year. Particularly am I

anxious that Mrs. A. H. Brumback be sent a mailing list of all public waiting and reading rooms in the counties, so that copies of "*The Illinois Health Messenger*" may be placed there. We feel this is an excellent way to counteract the unethical health literature of quacks, cults, cure alls, and the *Christian Science Monitor*, which are always very prevalent in such places. Please make every effort to co-operate in this matter. It is important.

Mrs. Lucius Cole, President

SANGAMON COUNTY AUXILIARY MEETS

The December meeting was held in the University Club at Springfield, a large number being present. Dr. J. R. Neal spoke on Legislative matters to come up in the next session and urged all to be ready to help. The society is becoming more of a success at every meeting as the members become more enthusiastic.

Suzan Helen Flentje.

SALINE COUNTY AUXILIARY MEETS

The Saline County Auxiliary met with the Saline County Medical Society at the home of Mr. and Mrs. W. T. Johnson for their Christmas meeting. A delicious turkey dinner was served. Following the dinner a program was enjoyed.

Mrs. J. H. Gregory.

DON'T FORGET YOUR INCOME TAX REPORT

The following from the Department of Legal Medicine and Legislation of the A. M. A. of which Dr. William C. Woodward is Director should prove a great aid to doctors in making out income tax report:

The Revenue Act of 1934, under which federal income tax returns must be filed on or before March 15 next, effects numerous changes in the prior income tax law. No such change, however, relates to physicians as a class distinct from the main body of federal income taxpayers.

Every one who is required to make a federal income tax return must do so on or before March 15, unless an extension of time for filing his return has been granted. For cause shown, the collector of internal revenue for the district in which the taxpayer files his return may grant such an extension, on application filed with him by the taxpayer. This application must state fully the causes for the delay. Failure to make a return may subject the taxpayer to a penalty of 25 per cent. of the amount of the tax due.

The normal rate of tax on residents of the United States and on all citizens of the United States regardless of their places of residence, under the Revenue Act of 1934, is 4 per cent on net income in excess of the exemptions and credits.

WHO MUST FILE RETURNS

1. Returns must be filed by every person whose gross income in 1934 was \$5,000 or more, regardless of the amount of his net income and of his marital status. If the aggregate gross income of husband and wife, living together, was \$5,000 or more, they must

file either a joint return or separate returns, regardless of the amounts of their joint or individual net incomes.

2. If gross income was less than \$5,000, a return must be filed (a) by every unmarried person, and by every married person not living with her husband or his wife, whose net income was \$1,000 or more, and (b) by every married person living with her husband or his wife, whose net income was \$2,500 or more. If the aggregate net income of husband and wife, living together, was \$2,500 or more, each may make a return or the two may unite in a joint return.

If the status of a taxpayer, so far as it affects the personal exemption or credit for dependents, changed during the year, the personal exemption and credit must be apportioned, under rules and regulations prescribed by the Commissioner of Internal Revenue with the approval of the Secretary of the Treasury, in accordance with the number of months before and after such change. For the purpose of such apportionment a fractional part of a month should be disregarded unless it amounts to more than half a month, in which case it is to be considered as a month.

As a matter of courtesy only, blanks for returns are sent to taxpayers by the collectors of internal revenue, without request. Failure to receive a blank does not excuse any one from making a return; the taxpayer should obtain the necessary blank from the local collector of internal revenue.

The following discussion covers only matters relating specifically to physicians. Full information concerning questions of general interest may be obtained from the official return blank and from the collectors of internal revenue.

GROSS AND NET INCOMES: WHAT THEY ARE

Gross Income.—A physician's gross income is the total amount of money received by him during the year for professional services, regardless of the time when the services were rendered for which the money was paid, plus such money as he has received as profits from investments and speculation and as compensation and profits from other sources.

Net Income.—Certain professional expenses and the expenses of carrying on any enterprise in which the physician may be engaged for gain may be subtracted as "deductions" from the gross income, to determine the net income on which the tax is to be paid. An "exemption" is allowed, the amount depending on the taxpayer's marital status during the tax year as stated above. These matters are fully covered in the instructions on the tax return blanks.

Earned Income.—In computing the normal tax, but not the surtax, there may be subtracted from net income from all sources an amount equal to 10 per cent of the earned net income, except that the amount so subtracted shall in no case exceed 10 per cent of the net income from all sources. Earned income means professional fees, salaries, and wages received as compensation for personal services, as distinguished from receipts from other sources.

The first \$3,000 of a physician's net income from all sources may be regarded under the law as earned net

income, whether it was or was not in fact earned within the meaning set forth in the preceding paragraph. Net income in excess of \$3,000 may not be claimed as earned unless it in fact comes within that category. No physician may claim as earned net income any income in excess of \$14,000.

DEDUCTIONS FOR PROFESSIONAL EXPENSES

A physician is entitled to deduct all current expenses necessary in carrying on his practice. The taxpayer should make no claim for the deduction of expenses unless he is prepared to prove the expenditure by competent evidence. So far as practicable, accurate itemized records should be kept of expenses and substantiating evidence should be carefully preserved. The following statement shows what such deductible expenses are and how they are to be computed:

Office Rent.—Office rent is deductible. If a physician rents an office for professional purposes alone, the entire rent may be deducted. If he rents a building or apartment for use as a residence as well as for office purposes, he may deduct a part of the rental fairly proportionate to the amount of space used for professional purposes. If the physician occasionally sees a patient in his dwelling house or apartment, he may not, however, deduct any part of the rent of such house or apartment as professional expense; to entitle him to such a deduction he must have an office there, with regular office hours. If a physician owns the building in which his office is located, he cannot charge himself with "rent" and deduct the amount so charged.

Office Maintenance.—Expenditures for office maintenance, as for heating, lighting, telephone service and the services of attendants, are deductible.

Supplies.—Payments for supplies for professional use are deductible. Supplies may be fairly described as articles consumed in the using; for instance, dressings, clinical thermometers, drugs and chemicals. Professional journals may be classified as supplies, and the subscription price deducted. Amounts currently expended for books, furniture and professional instruments and equipment, "the useful life of which is short," generally less than one year, may be deducted; but if such articles have a more or less permanent value, their purchase price is a capital expenditure and is not deductible.

Equipment.—Equipment comprises property of a more or less permanent nature. It may ultimately wear out, deteriorate or become obsolete, but it is not in the ordinary sense of the word "consumed in the using."

The cost of equipment, such as is described above, for professional use, cannot be deducted as expense in the year acquired. Examples of this class of property are automobiles, office furniture, medical, surgical and laboratory equipment of more or less permanent nature, and instruments and appliances constituting a part of the physician's professional outfit, to be used over a considerable period of time, generally over one year. Books of more or less permanent nature are regarded as equipment and the purchase price is therefore not deductible.

Although the cost of such equipment is not deductible in the year acquired, nevertheless it may be recov-

ered through depreciation deductions taken year by year over its useful life, as described below.

No hard and fast rule can be laid down as to what part of the cost of equipment is deductible each year as depreciation. The amount depends to some extent on the nature of the property and on the extent and character of its use. The length of its useful life should be the primary consideration. The most that can be done is to suggest certain average or normal rates of depreciation for each of several classes of articles and to leave to the taxpayer the modification of the suggested rates as the circumstances of his particular case may dictate. As fair, normal or average rates of depreciation, the following have been suggested: automobiles, 25 per cent. a year; ordinary medical libraries, x-ray equipment, physical therapy equipment, electrical sterilizers, surgical instruments and diagnostic apparatus, 10 per cent. a year; office furniture, 5 per cent. a year.

The principal governing the determination of all rates of depreciation is that the total amount claimed by the taxpayer as depreciation during the life of the article, plus the salvage value of the article at the end of its useful life, shall not be greater than its purchase price, or, if purchased before March, 1913, either its fair market value as of that date or its original cost, whichever may be greater. The physician must in good faith use his best judgment and claim only such allowance for depreciation as the facts justify. The estimate of useful life, on which the rate of depreciation is based, should be carefully considered in his individual case.

In a Treasury decision, approved Feb. 28, 1934, No. 4422, it is held, among other things, that

1. The cost to be recovered shall be charged off over the useful life of the property.
2. The reasonableness of any claim for depreciation shall be determined on the conditions known to exist at the end of the period for which the return was made.
3. Where the cost or other basis of the property has been recovered through depreciation or other allowances, no further deduction for depreciation shall be allowed.
4. The burden of proof will rest on the taxpayer to sustain the deduction claimed.

5. The deduction for depreciation in respect to any depreciable property for any taxable year shall be limited to such ratable amount as may reasonably be considered necessary to recover during the remaining life of the property the unrecovered cost or other basis.

Particular attention is called to the last of the foregoing provisions. If, in prior years, rates have been claimed which, if continued, will fully depreciate the cost, less salvage, before the end of its useful life, based on conditions now known, a reestimate of the remaining useful life should now be made and the portion of the cost that had not been depreciated at the beginning of the year 1934 (for a return for the year 1934) should be spread over this reestimated life.

Medical Dues.—Dues paid to societies of a strictly professional character are deductible. Dues paid to social organizations, even though their membership is limited to physicians, are personal expenses and not deductible.

Postgraduate Study.—The Commissioner of Internal Revenue holds that the expense of postgraduate study is not deductible.

Traveling Expenses.—Traveling expenses, including amounts paid for transportation, meals and lodging, necessarily incurred in professional visits to patients and in attending medical meetings for a professional purpose, are deductible.

Automobiles.—Payment for an automobile is a payment for permanent equipment and is not deductible. The cost of operation and repair, and loss through depreciation, are deductible. The cost of operation and repair includes the cost of gasoline, oil, tires, insurance, repairs, garage rental (when the garage is not owned by the physician), chauffeur's wages, and the like.

Deductible loss through depreciation of an automobile is the actual diminution in value resulting from obsolescence and use and from accidental injury against which the physician is not insured. If depreciation is computed on the basis of the average loss during a series of years, the series must extend over the entire estimated life of the car, not merely over the period in which the car is in the possession of the present taxpayer.

If an automobile is used for professional and also for personal purposes—as when used by the physician partly for recreation, or so used by his family—only so much of the expense as arises out of the use for professional purposes may be deducted. A physician doing an exclusive office practice and using his car merely to go to and from his office cannot deduct depreciation or operating expenses; he is regarded as using his car for his personal convenience and not as a means of gaining a livelihood.

What has been said with respect to automobiles applies with equal force to horses and vehicles and the equipment incident to their use.

MISCELLANEOUS

Laboratory Expenses.—The deductibility of the expenses of establishing and maintaining laboratories is determined by the same principles that determine the deductibility of corresponding professional expenses. Laboratory rental and the expenses of laboratory equipment and supplies and of laboratory assistants are deductible when under corresponding circumstances they would be deductible if they related to a physician's office.

Losses by Fire or Other Causes.—Loss of and damage to a physician's equipment by fire, theft or other cause, not compensated by insurance or otherwise recoverable, may be computed as a business expense and is deductible, provided evidence of such loss or damage can be produced. Such loss or damage is deductible, however, only to the extent to which it has not been made good by repair and the cost of repair claimed as a deduction.

Insurance Premiums.—Premiums paid for insurance against professional losses are deductible. This includes insurance against damages for alleged malpractice, against liability for injuries by a physician's automobile while in use for professional purposes, and against loss from theft of professional equipment and damage to

or loss of professional equipment by fire or otherwise. Under professional equipment is to be included any automobile belonging to the physician and used for strictly professional purposes.

Expense in Defending Malpractice Suits.—Expenses incurred in the defense of a suit for malpractice are deductible as business expense.

Sale of Spectacles.—Oculists who furnish spectacles, etc., may charge as income money received from such sales and deduct as an expense the cost of the article sold. Entries on the physician's account books should in such cases show charges for services separate and apart from charge for spectacles, etc.

INDICATIONS FOR THERAPEUTIC ABORTION FROM THE STANDPOINT OF THE NEUROLOGIST AND THE PSYCHIATRIST

Clarence O. Cheney, New York (Journal A. M. A., Dec. 22, 1934), reviews some of the opinions of neurologists and psychiatrists on therapeutic abortion and reports a number of specific cases of mental disorders, involving the question of abortion, from which he concludes that: 1. There appears to be no individual neurologic or psychiatric disorder that is an absolute indication for abortion in women suffering from such disorders. 2. Experience shows that some women with severe advanced neurologic disorders may go through pregnancy and have healthy children. 3. Experience shows that some women suffering from severe mental diseases may pass through normal pregnancy and childbirth. 4. Experience shows that abortion does not necessarily prevent a recurrence of mental attacks or bring about recovery from attacks already existent. The pregnant woman's general physical condition must be given careful consideration in a decision regarding the termination of pregnancy.

FOOD VALUE OF BEER

The food value of beer as measured by calories is not wholly dependent on the alcoholic content. For example, Lusk states that "a liter of German beer contains from 3 to 4 per cent. of alcohol and from 5 to 6 per cent. extractives. It yields 450 calories to the body, only half being derived from alcohol, the rest from dextrin and protein-like extractives. Here is a food material whose 'fattening' properties may be very highly considered." Christie has considered the same subject in relation to the nutritive value of other fluids containing alcohol. While the number of calories per ounce of the malt liquor is for the most part lower than that of an equal quantity of wines, liqueurs and spirits, the former are usually taken in much larger quantities than the latter and hence the total calory intake is generally more. Christie concludes, therefore, that light beers are ideal for the undernourished, and if the calories of beer are added to those of the usual diet there would seem to be no doubt of the practical value of his statement.—Jour. A. M. A., Dec. 22, 1934.

Original Articles

X-RAY AND RADIUM TREATMENT OF CANCER OF THE BREAST

GENTZ PERRY, M. D.,
EVANSTON, ILLINOIS

In an article on radium therapy read before the Evanston Branch of the Chicago Medical Society in October, 1930, I stated:¹ "Surgery and radio-therapy are not competitors. Many patients need both forms of treatment. No man is strong enough and intelligent enough to be both an expert surgeon and an expert radiologist and successfully practice both lines of work. The most skilful surgeons and the most skilful radiologists are rapidly realizing these facts, and the better class of radiologists and surgeons are now working in harmonious co-operation for the benefit of their patients."

In 1931 in a paper on "Treatment of Breast Cancer," I stated:

"The medical profession are constantly coming to a more complete agreement upon the treatment of mammary carcinoma. This agreement has doubtless proceeded to the stage of a fairly common opinion that, in the average case of breast cancer, whether it be a squamous cell type, an adenocarcinoma, or a mixture of both, the patient is given the best chance for recovery if we use a combination of radiotherapy, surgery and general medicine in treating the case."

"However, there does not seem to be a complete understanding between the different members of the medical profession as to the precise manner in which these various forms of treatment should co-operate. Doubtless, different cases require somewhat different plans of procedure in order to give each patient the best possible chance for recovery and I do not wish to be dogmatic in the laying down of rules of treatment. However, there are certain basic facts that we believe apply to all of the ordinary cases of this type, and a definite plan of treatment that it is ordinarily best to follow out in all cases that do not show either Roentgen evidence or other physical evidence of metastases to the spine, lungs or other vital organs."

In that same paper on "Treatment of Breast Cancer" I also stated:²

"When Halsted, Gross and other prominent surgeons developed the 'radical breast operation' which, as we all know, includes the removal of the pectoral muscles and axillary glands and fat, as well as the entire breast, we followed their teaching and performed that operation in breast carcinoma cases. Fifteen years ago it was probably the best thing that could then be done. At

the present time we have a more certain means of clearing up the newly forming but invisible metastases which may be developing in the axilla or elsewhere. Unless there are plainly palpable, *hard and firm* masses in the axillary, infra- or supraclavicular regions, it is probably better to treat these regions by radiotherapy and *not* invade them *surgically*. In my opinion this statement will be undisputed ten years from now."

We have obtained our best results by the following general plan of treatment:

1. Giving the patient a thorough and heavy dosage of x-ray, using the "cross fire" method by radiating the malignant areas and the adjacent lymphatic drainage areas therefrom, by 200 KV voltage, 60 cm. distance, using a "Thoraesus" filter which is equivalent to 2 mm. of copper plus 1 mm. of aluminum filter, throwing four-fifths, or 4000 "r" of the total dosage of x-ray so that the rays go through the tissues to be treated, tangential to the ribs under the area radiated. (See Figure 1.) This illustration represents the patient lying upon her right side with the right axilla and shoulder, breast and right two-thirds



Fig. 1. Treatment of right breast by x-ray coming up from tube below patient.

of the anterior chest wall extending over the edge of the sheet lead, described in Figure 5, in such a manner as to receive the x-rays coming up from the tube below the patient. In this position there will be a small area of the pleura in the right anterior chest wall area that will get some direct irradiation. Other than this, the patient's lungs are getting no x-ray except what they are getting from the "back scatter" from the areas above mentioned as being in the direct line of the x-ray. The dotted lines show the divergence of the x-ray beam upward through the shoulder and downward along front wall of patient's thorax. Fig-

Read before Section on Radiology at Meeting of Illinois State Medical Society at Springfield, May 16, 1934.

ure 2 shows another patient in the same position as is shown in Figure 1. This is one of those rather rare cases of breast malignancy in the male sex. He was treated with a combination of x-ray and radium therapy early in 1932. No surgery was used. Pathologist's report on biopsy before treatment was squamous cell carcinoma.



Fig. 2 (above). Showing another patient in same position as Fig. 1.

Fig. 3 (middle). Same patient as Fig. 2 being treated from left antero-lateral position of tube which, as before, is below patient.

Fig. 4 (bottom). Patient in position to receive x-ray directly through chest wall, mediastinum, lung, etc., directly from front.

This patient has shown no signs of a recurrence of his malignancy up to this date. In Figure 2 note the four-double sheet of lead rubber between the pillow and the patient's head. This precaution is necessary if we are to save the patient's hair during intensive treatment of this sort.

Figure 5 shows the large pieces of quarter-inch lead which we use to modify the size of the treatment area through which patient receives x-ray from the therapy tube in the Standard treatment

couch which we use in treating these patients. Of course, the inner edge of either sheet of lead may be moved to the center of the opening so as to exactly bisect the total area of x-ray beams coming upward to patient. These sheets of lead are, of course, quite heavy and they "stay put" without any difficulty after we have made the set-up for that treatment. Figure 3 shows this same male patient (again you will note the four thicknesses of lead rubber between pillow and patient's head) so placed that he is receiving the upward beam of x-ray through only the malignant breast chest wall and shoulder. Please note, however, that the x-ray in this position is being delivered to these areas from the opposite direction as that shown in Figure 2; in such cases, it is necessary to move the tube in the treatment couch below patient upward sufficiently to maintain the proper target skin distance. In this particular case, the records show that we had to move our tube upward 14 cm. for the treatments given in this position.

Figure 4 shows the patient placed in proper position for the x-ray to be given directly through the chest from an anterior port of entry.

In giving these doses of x-ray, we sometimes need to use especial care and ingenuity to properly throw the x-ray through certain desired portals of entry and in certain desired directions. Figure 6 illustrates one way in which we may throw x-ray through the shoulder, supra and infraclavicular regions, breast, etc. Of course, in the set-up illustrated by Figure 6, the lungs would also receive irradiation.

In all cases, we include the shoulder and clavicular areas on the affected side, and one-fifth, or 1000 "r" are sent directly through the entire chest, 500 "r" through the anterior wall of chest with central beam of x-ray aimed directly at the fourth or fifth dorsal vertebra, according to the "build" of the patient, and keeping the doses just within the limit of the patient's tolerance, so as to avoid severe nausea or other severe shock to the patient's vitality, and 500 "r" with patient as shown in Fig. 6. We give a dose of x-ray either every second or every third day, depending upon the age and strength of the patient, until we secure a "saturation limit" of the entire area after the method of George Pfahler, and then give the rest of this first series of doses just large enough to maintain the saturation limit of the tissues until

at least 5000 "r" (we usually give 6000 to 8000 "r") of the first series of x-ray treatments have been given. We thus give more than an ordinary erythema dose through each portal of skin entry, and several times an ordinary erythema dose through the malignant area. By using four portals of entry, we can thus deliver

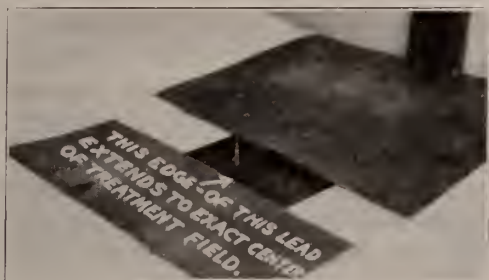


Fig. 5. Sheets of lead 20 in. long, from 12 to 18 in. wide, and $\frac{1}{4}$ of an in. thick, are placed under the patient, as indicated, to limit size of field and also the lateral deviation of x-rays going to patient.

at least 5000 "r" to the patient during this first series of x-ray treatments.

The "Thoraesus" filter, as you know, is a combination of tin, copper and aluminum, and, in my opinion, gives us a better depth dose, and in less time than one would obtain using an equivalent amount of copper filtration. In my paper read in 1931, I predicted that "A still better filter may some day be developed," not knowing that Robert Thoraesus of Stockholm, Sweden, was at that time making a most careful and scientific study of the whole matter of filters. Thoraesus worked out and gave to the medical profession of the world his valuable filter, which we gratefully designate by his name. Doctors Quimby and Failla of The Memorial Hospital of New York City made a series of rigid scientific tests of Thoraesus' filter and found that all of Thoraesus' work and his published reports were correct. At the request of a number of Radiologists, Dr. Robert S. Landauer of Highland Park, Ill., procured the materials and personally supervised the manufacture of these filters for our use here in America. Before using the "Thoraesus" filter, we used for the most part 2 mm. Cu plus 1 mm. Al filters. The higher voltages than 200 KV may be better for the treatment of these cases, but this is an open question that has not yet been settled. In so far as I known, the majority of radiologists, physicists, and pathologists today are inclined to the belief

that 200 KV is as useful as a higher voltage. These x-ray treatments are the *first thing* to be done for the patient, and occupy from three to four week's time in the treatment.

2. Any hard and well developed masses that remain after this preliminary series of x-ray treatment should *at once* be treated by the interstitial placing of radium within these malignant masses in platinum containers of at least one-half mm. wall thickness, and 1.5 mgms. (or about that amount) of radium in each implant, and enough radium should be placed and as evenly distributed as possible so that we may have one mgm. for each cubic cm. of the malignant mass. All radium should be placed at least one cm. beneath the skin surface and no radium should be placed closer than one cm. to any large blood vessel nor to any healthy bone surface. We leave this radium so placed in position for at least one week, which is a longer period than most radium therapists use. However, in certain bad cases of large, hard scirrhus



Fig. 6. By heavy lead shields to limit port of entry to side and base of neck and top of shoulder, we can thoroughly ray these areas, including the axilla, without any direct rays hitting the skin in front and back of chest wall.

masses, we leave the radium in the tissues for as long as ten days.

3. In all cases where there were well developed carcinoma tumor masses, the remaining tissue of these masses, together with an adjacent margin of 2 cm. of healthy tissue, should be excised surgically *within forty-eight hours after the radium therapy is completed.*

4. The complete removal of the breast and

axillary lymph nodes is not necessary, and not desirable in the cases thus treated.

Now, some other important considerations:

During all of these x-ray treatments we insist that a competent and experienced internist who will fully cooperate with us by making the required blood examinations, heart studies and urinalyses at the proper times and who will faithfully look after the patient's diet and general health conditions, be constantly in charge of this patient. We further insist that this internist "follow through" on this case during all necessary subsequent care of this patient whether it be radiotherapeutic or surgical.

In our opinion the radiologist and the surgeon are, and should be, directly and solely responsible for the elimination of the malignant disease of the patient while the internist is, and should be responsible for the patient's general health through the entire time of the patient's care. This "Internist" should, if possible, be the "regular family physician" who is familiar with the patient's habits, history, idiosyncrasies, etc. Such a physician, if he is honest and capable, should be *The Physician* to give the constant cheer and encouragement to the patient throughout her entire ordeals of treatments and "the fight for life" that the patient must necessarily make in all such cases.

Upon this physician's tact, ability and complete honesty much depends. Fortunate indeed is the patient who can secure the services of a Medical Triumvirate that will completely meet and fulfill the above ideals. If all of these physicians will meet and consult, *In the Presence of the Patient*, and *Then* and *There* plan the basic details of the treatments, operation and care of that patient for a period of the next five years, or longer, the outcome will, if the case has been diagnosed early, be successful in at least 80% of these cases.

It is our opinion that all normalminded patients who have a breast cancer should be honestly and frankly informed of the fact and that said patient should, as above stated, be present and be an active partner in the conference of the radiologist, the surgeons and the internist or general physician *before* the treatment and care of the case is begun. This broad-minded start of the care of the patient will do wonders to remove the tendency of some physicians to "pass the buck" during the treatment of the case, be-

cause, in this preliminary conference, it should be definitely outlined, agreed upon and fully understood by all four of the people interested, exactly what duties rest upon each of these four people primarily involved in the plan and just what each one is to do and precisely when these various things are to be done.

In our private practice, we have been 100% successful in thus planning and carrying out the treatment of these cases because we *Insist* upon the full preliminary plans, as above outlined, *Before* we start to care for the case. Of course, an occasional illness or disability of some physician may make it imperative to slightly modify the plans, but the *Complete* preliminary conference and plans, with the full and frank understanding as above outlined, makes the whole care of the case comparatively easy, pleasant and in at least 80% of the cases, successful.

We have attained a percentage of 81% of five years or more freedom from malignancy in all of the cases thus treated in which there were no pulmonary, spinal nor other gross evidence of metastases in these or other internal organs, and where there were no palpable lymph nodes in the supraclavicular spaces before the treatments were started.

It will be noted that one of the underlying principles of our plan of treatment is the immediate follow-up of each definite part of the treatment with the next planned step of treatment. Our purpose in doing this is to try to catch all of the malignant cells with some form of radiotherapy during their most radio-sensitive stage of development. Then, if we have not succeeded in permanently destroying the vitality of the more well developed malignant centers, we try to eliminate these by the *immediate* followup of surgery, as above outlined. Contrary to many expressed surgical opinions, our experience is that if the surgical work be done immediately following the radiotherapy, we get a prompt healing of the surgical wounds. However, we find that these healed wounds are somewhat slow in forming the necessary fibrous tissue union of the tissues and that the retaining sutures have to be left in place some two or three days longer than would ordinarily be done with an ordinary surgical wound of the same type where no radiation therapy has been used.

Where recurring malignancy follows the above outlined treatments, if these recurrences show

up as superficial nodules, we immediately implant through or just beneath each such nodule the same type of radium removable implants as were used in the original treatment of the case, but we double the amount of radium; that is, we use 2 mgms. of radium for each cu. cm. of the nodule tissue, and, unless there is a large blood vessel, nerve trunk, or healthy bone closer than 2 cm. from the nodule thus treated, these radium implants are left in place seven days in the usual case. If the patient is fairly young and in robust health, we give these recurring cases a second series of x-ray dosage at the same time that we are using the radium implants in any nodules that may have recurred. If there are recurrences in the internal organs, as may be shown by a pulmonary or other internal metastases or bone destruction of some of the vertebrae, we then refrain from doing anything more in the case other than the giving of such palliative x-ray treatment as may tend to relieve the pain or other distressing symptoms that the patient may have. The comparative rarity of these distressing recurrences makes the whole picture a much more bright and encouraging one than it was possible to produce in the days before irradiation therapy began to materially brighten up the outlook for these cancer patients.

636 Church Street.

REFERENCES

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DISCUSSION

Dr. B. C. Cushway, Chicago: This has been a very interesting presentation. Dr. Perry has made use of practically all the methods of treating malignancy. I will confine my discussion to general points rather than the technical procedure, because Dr. Cutler is with us, and I should like to have him have some of my time. He has had more experience than I have had and than perhaps most of us. I personally would be interested in what Dr. Cutler might say.

I think Dr. Perry should be complimented on this presentation. Work of this kind is certainly valuable to us as radiologists because it stimulates us to go farther in treatment of this sort.

There is one thing that is very striking in the presentation made by Dr. Perry, and that is the thoroughness and particular attention shown to details. Certainly, if we are to make any progress in this field, that is one essential we must have, thoroughness in detail.

The advantages or perhaps improvements in our radiation technique are very largely due, as I see it, to the use of increased filtration, to the possibility of

carrying the radiation dose to the fullest extent, even that producing destruction of tissue, feeling that if tissue is destroyed, later on this may be repaired by surgery.

The great obstacle to success in this work is, perhaps, the fact that we will fail in many cases due to the fact that we cannot get them early enough to carry out the treatment successfully.

We have heard a great deal about surgical judgment in connection with surgery. I think we should coin some expression in our radiological work that would have some similarity, because certainly the radiologist needs a high degree of judgment. Radiological judgment, of course, can only be acquired in the same manner that the surgeon acquired his surgical judgment, with a knowledge of anatomy, a knowledge of pathology, of pathological surgery, and then the experience that comes from treating a great many of these cases.

In treating these cases, it would be only proper to mention that we should divide them into cases that are curable, radiation-curable cases, and radiation-palliative cases. Of course, radiation-palliative cases would not have the treatment that Dr. Perry has just outlined for us.

As to the application of this plan of treatment, as to whether surgery should be used, or radiation be emphasized more, I think that will still have to be proved. I think that is a matter that is experimental at this time. We must, of course, consider the use of electro-surgery and the plain surgical excision. We know that with plain surgical excision in malignancy of the breast some very good results are being obtained or have been obtained. Whether we can do better with our radiological methods remains to be proven.

It seems to me that the ideal method would be the use of preoperative radiation followed by electrosurgical excision with the use of radium where and when indicated, as a supplementary measure, and followed by postoperative radiation in most of these cases.

Dr. Henry W. Grote, Bloomington, Ill.: In the main I agree with this, but I do not believe in so much traumatism, excepting in recurrent cases. We as radiologists see a lot of these cases come in postoperatively with really extensive and vicious recurrences. In those cases I agree with implantation.

I have a lot of notes and questions, but I am going to give up the rest of my time to Dr. Cutler.

Dr. Max Cutler, Chicago: I was very much interested to see the film of Dr. Perry and compliment him on his industry in accomplishing this difficult task. However, I cannot subscribe entirely to the technic which he employs.

In my opinion the essential defect in the method is the shortness of the needles. This requires the use of many more needles and therefore additional trauma which should be avoided under different circumstances. The theory that increased bleeding is of assistance to the patient is surgically unsound and I would emphasize that as in all surgical procedures, hemostasis should be as complete as possible. I must also take exception to the suggestion that the surgical procedure for cancer of the breast should not be entirely radical. There has been, I think, an unfortunate tendency to diminish the

extent of the surgical procedure for mammary cancer but on the hope and confidence that postoperative radiation will destroy the remnants of the disease. This is a very unsound attitude, and I am sure it is bound to reduce our five-year cures which radical surgical efforts have attained. When the surgical operation is performed for cancer of the breast it should be the radical operation as described by Halstead. Surgical procedure for mammary cancer which does not fulfill these principles does not offer the patient her greatest chance of cure.

At the present time most authorities are of the opinion that surgery combined with radiation offers the better prognosis than either surgery or radiation alone. To this view I subscribe. Under some circumstances I use pre-operative radiation, perform the radical operation, and follow this with postoperative radiation. In most instances I perform the radical operation and only followed but not preceded by radiation.

The use of radiation alone in the treatment of operable carcinoma of the breast constitutes an interesting field of clinical research. There is no question that the cure of cancer of the breast can be accomplished by radiation. Whether it can be accomplished with equal frequency as by the radical operation we are not yet in a position to state. Until such time as adequate evidence is available to demonstrate the superiority of radiation alone over surgery, the treatment of operable mammary cancer should consist of the radical surgical operation, sometimes preceded by or followed by radiation therapy.

Dr. Gentz Perry, Evanston, Ill.: In connection with the movie film shown I just want to state a few things. One is that in the preliminary x-ray therapy I followed the Pfahler method. The patient was given 4652 "r" before the radium was used. That treatment extended over a period of four weeks. That x-ray treatment was immediately followed by the radium treatment, which was all given through one-half mm of platinum filtration, in the manner outlined in this paper, and consisted of a total dose of 19,337 milligram-hours. Only the mammary gland, and none of the muscle nor lymphatic tissues of the chest wall nor axilla, was later removed surgically.

At the beginning of the x-ray treatment June 8, 1931, patient weighed 158 lbs., and after all of the irradiation and surgical treatments had been finished she weighed 136 lbs. Weekly studies of her blood and of her entire physical conditions were made over a period of six months and she was given careful supportive diet and medication during all of this time. She now weighs 154 lbs. and is apparently in perfect health and x-ray stereoscopic films show that both lungs are entirely clear and there is no sign of any pulmonary fibrosis. She is physically and mentally unusually active for a woman of her age.

As you will recall from the film shown, the original cancer mass had completely inverted the left nipple and, before treatment was begun, this mass measured 10x12 cm in size and stood up above the normal level of the surrounding surface of skin fully 5 cm. This mass had

shrunk to less than half of that size after the irradiation therapy was completed.

Three competent pathologists made the microscopical studies of the preliminary biopsy and of the tissue removed surgically and we are especially grateful to Professor Doctor James Ewing of New York City who so kindly made a thorough microscopical study of these same tissues.

WHY IS AN ANTIVIVISECTIONIST?

C. I. REED, Ph. D.

CHICAGO

After more than twenty years of contact with, and active participation in what certain people choose to call vivisection, I am still at a loss for an answer to that question. I first engaged in animal experimentation because I needed to have certain information relative to the care of dogs and all efforts to obtain it by any other method failed completely, although I tried strenuously and sincerely to get it in some other way. Until that time I had never had any contact with a militant antivivisectionist. I was, therefore, greatly shocked and puzzled when an intelligent, well educated lady informed me that I was an inhuman brute, worthy only of contempt and of the severest punishment possible. There was absolutely no financial gain to me in the experiments which had drawn her disfavor. The experiments involved no surgical procedure, the dogs never gave any evidence of discomfort, and when the experiment, a simple feeding experiment, had terminated they were all three given to friends. And yet my accuser insisted that I was a vivisectionist.

The term vivisection means literally "cutting up alive." To most opponents of the experimental use of animals and perhaps also to the uninformed public, it implies cutting without anesthetics.

Through the intervening years, I have devoted a great deal of thought to the problem of understanding the psychology of the "anti." It has always been my practice when differing with another on any subject to first make an honest effort to see the problem through the eyes of "the other fellow" and thus determine whether I really am in the wrong. I have made an honest effort to do this in relation to the antivivisectionist.

I have talked with many active members of

Department of Physiology, College of Medicine, University of Illinois.

this group, discussing the problems involved and trying to understand. I have examined the work, the motives and the accomplishments of my colleagues in a real effort to decide whether the charges so frequently made against them are well founded.

I have many friends who are members of some one of the "anti" groups. They are often intelligent (at least on other subjects), refined, well educated people. We discuss the problem frankly and without mincing matters. We differ but respect each other's views. I have, in the study of this question, acquired a rather wide acquaintance with groups of antivivisectionists. To my surprise I have found that they are not a homogeneous group but rather embody many divergent types of humanity.

The first agitators on the question in this country were apparently well-meaning humanitarians, poorly informed but very sincere, who were aroused to militant frenzy by the experiments of John Call Dalton, who later became president of Columbia University. He had found it desirable, as a teacher of physiology, to use anesthetized animals in demonstrations before his classes. In those days anesthesia was poorly understood and it is comprehensible that laymen failed to appreciate how an animal could "react" and still be unconscious.

A little later Henry Pickering Bowditch, first full time professor of physiology at Harvard University, became the center of attack. The motivation of the attackers appears to have been much the same as in the case of Dalton.

In those days there were no Christian Scientists and no strongly "antimedical" groups in this country. But with the development of the numerous healing cults a new type of individual came into the picture, one opposed to animal experiments from purely selfish motives because the practice was largely carried on by medical men and, therefore, at variance with some particular antimedical organization. In the case of the cultist, there is a noisy, pestiferous annoyance but no very effective opposition.

From my own personal contact with intelligent and cultured Christian Scientists, I do not find that many of them are strongly opposed to animal experiments per se but only insofar as the practice is a part of modern medicine. There are, of course, exceptions where the Christian

Scientist is also an illogical, emotional sentimentalist.

While the opposition to animal experiments has been annoying and troublesome, no very substantial effects were accomplished until all of the various elements were welded together under the leadership of professional promoters and agitators who have no particular moral or ethical scruples about the practice, but whose living depends on the enlistment of the active interest of progressively larger memberships in the organized groups.

With the Christian Scientist, I am not disposed, at present, to debate. He is entitled to his religious views and any attack upon him will be interpreted as an attack on his religious liberty. With the other antimedical cultists and health faddists it is futile to argue. If they are so unreasonably partisan as to be unconvinced of the accomplishments of scientific medicine in the face of the mass of evidence available to anyone who will examine it, they stand little chance of really understanding any further evidence that one may present. They are not necessarily ignorant, just prejudiced. Despite the claims of the antivivisectionist organizations, I am inclined to the view that these people make up an uninfluential minority.

The sentimental humanitarian, on the other hand, is usually actuated by motives of the finest order even though his efforts are grossly misapplied. He may be ignorant, he may be partisan, he may be misinformed, but he is usually far less vicious, far less menacing than the paid organizer and executive who must make the movement succeed or lose his job; less ludicrous than the publicity seeker who uses any and every opportunity, regardless of ethics, to gain sensational publicity either to gratify the ego or to gain professional advancement by such means.

One prominent "anti" is a vegetarian who says he would not take a dose of insulin even if he knew he would die without it, because it is a product of animal experiments. He argues that man has no ethical right to profit by the pain or death of a lower animal. At first, one is inclined to pay the highest tribute to his stand—until it is noted that he wears leather shoes; has a fur collar on his overcoat; carries a knife with a genuine stag horn handle; goes fishing for sport; wears woolen clothing; and has a fur rug in his home. All of these are available to him

because of the death of some animal, except woolen clothing. This will be referred to again.

The antivivisectionist attempts to justify opposition to animal experiments on the basis of certain reasoning, the premises of which are as follows:

1. Man has no right to profit by the suffering, death or restriction of liberty of lower animals.

2. Animal experiments have contributed no useful knowledge whatever.

3. Animal experiments invariably involve cruel treatment of the subjects.

4. The experimenter is an inhuman brute, a sadist, who takes this method of gratifying his lust.

5. Animal experiments are carried on by irresponsible enthusiasts actuated by selfish motives.

6. The experimenter depends for his subjects on the theft of the property of others.

7. Certain diseases have been increasing in spite of medical research; therefore, it does no good to carry it on.

As a matter of fact, the real reason does not depend on any of these points. I first obtained a clue to this in correspondence with a prominent female antivivisectionist. I challenged her to explain her stand and also challenged her to come unannounced into our laboratories and stay as long as she wished in order to see just what was being done and thus become better informed on a subject about which she had been, and still is, a profuse writer and speaker. Her reply, quoted in part below, gives a clear notion of the real animus of the "anti."

"The reason I did not visit your laboratories was that I knew I should only see there the sort of *care* you give your dogs—and it is not their daily care (which we who cannot bring ourselves to embrace vivisection) (SIC!) that concerns us chiefly. My husband urged me not to go as he knew I should be unhappy about it for days, and there are far too many distressing cruelties brought to my notice every day, for me to add one more burden. * * *

"I did see, years ago, when living in _____ (a university city), a dog that had been operated on, still strapped to the table at _____ University. I stumbled into the room by accident, looking for someone, and it was a sight I have never been able to forget."

These paragraphs reveal clearly the purely emotional motivation of her reaction. She does not state what kind of an operation had been

done, what was the animal's condition, whether dead or alive, she obviously made no effort to determine whether the animal was even alive when operated upon. In some laboratories, dead dogs are dissected—also used as dummy subjects for surgical operative experience. In short, she merely acquired a bad attack of "horrors" without attempting to learn anything of the conditions of her observation.

She sidestepped rather clumsily the matter of visiting the laboratories. One wonders just what would be her reaction if she should visit one of our great clinics and see the poor broken wrecks of humanity, waiting in dumb resignation for relief from suffering, relief which the physicians are not able to give in many cases because medical science has not yet given to them enough of the necessary knowledge to deal successfully with these cases.

One may trace a similar motivation in the perverted views of most of the emotional antivivisectionists. Their only justification lies in this emotional reaction. When they attempt a logical grounding in the seven premises stated above, the scientist can readily marshal arguments that will convince the unbiased mind rather readily. In case of the mind already closed to reason by blind prejudice he has little chance of carrying conviction. In that case he must appeal his case to public decision, for after all, the public is the sufferer from lack of knowledge and the beneficiary of knowledge gained.

I can comprehend a certain degree of emotional attachment for a dog. Not for any and every dog, but for certain ones. My only playmate as a child was a dog. My small boy has a beautiful but perfectly useless, flighty female collie to which he is greatly attached. She is a heavy expense and a constant modifying factor in our activities. Because the youngster likes to play with her, we are satisfied to keep her. If anyone were to abuse her, I fear I should display considerable emotion about the matter. I think, therefore, that I am able to comprehend fully the emotions of dog lovers.

But in a great hospital lies a little girl of 13 years, an intelligent, lovable little tyke, who is, in my estimation, the world's greatest optimist. For three years she has lain in a hopeless condition of fixation of nearly every joint in her body including the jaws. Every movement, even contact with clothing, was an extremely agonizing

experience. For three years before she came into the hospital she was unable to play and enjoy a normal child existence. Nothing could be done to arrest the progress of her condition, because, in spite of the most strenuous efforts on the part of the men who tried to deal with her case, they were handicapped by lack of the necessary knowledge.

Lucile is sure she is going to get well. She has only two replies when asked how she is, "Fine," and "All right." Her sweet smile and cheerful gratitude for any favor would melt a stone. Can her faith be justified? Are her attendants going to be compelled to break faith with her?

If the antivivisectionists have their way, yes, she will be left to her fate. Why? Because the only treatment that has so far shown any prospects of benefitting her was derived from some investigations that resulted in the death of 40 dogs. The only prospect of further benefit lies in further pursuit of the problem by more animal experiments. One of her attendants has said, "I would be willing to kill all the dogs in the city of Chicago, if I thought I could thereby gain enough knowledge to make this little girl walk again and thereby justify her faith in me and my colleagues."

So, kind reader, you may take your choice of two courses. You can see the dogs pampered and petted while Lucile and thousands like her continue to suffer, while the dog lovers tie the hands and fetter the brains of the men who would help them. Or, you may decide to give the investigator liberty to go ahead and try to gain more knowledge that will be of value to you and your descendants.

The acquisition of knowledge is a slow process. Knowledge does not come alone from thinking and observing, however valuable these may be. There are always circumstances in which these processes will not bring the answer and then must one resort to experiment.

A few years ago the local "anti" group published a booklet made up of questions and answers. One of the questions was:

"How can they (surgeons) learn entirely new operations?"

Ans. "By observation, careful thought, and some degree of genius * * *"

The observational method which depended on chance and was, therefore, largely empirical, was

the method of choice in medicine until about one hundred years ago. And one has no hesitancy about admitting that the method did add greatly to knowledge. The medical scientists have never denied it. In fact, a large part of the medical knowledge now available has been gathered without the aid of animal experiments, certainly without those involving surgical operations and death of the animals. But, unfortunately, there are vast gaps in knowledge that cannot be filled in this way. When the natural limitations of this method are reached then man's eyes, ears, nose, tactile sense and reasoning power must be augmented by experimental procedures.

Medical history is full of examples of mistakes made because the physician relied too much on reasoning from insufficient data. For example, Billroth, one of the most able European surgeons of the past century, once declared that no surgeon who wished to preserve the respect of his colleagues would even attempt to operate on the heart. But in 1881 Dr. John B. Roberts boldly proposed experimental efforts on animals and thereby initiated a series of investigations by several surgeons from which, finally, was developed the technic by which many hundreds of such operations have since been performed on the human heart and many lives saved. Without animal experiments this would have been impossible.

Prior to 1900 it was practically impossible to satisfactorily diagnose many of the symptoms resulting from head injuries because, in spite of innumerable observations on human subjects both at operation and at autopsy, the localization of function in the brain was not understood. This knowledge was not gained except by animal experiments. Since that time the surgeon can proceed to operations for correction of head injuries with much greater assurance of success. Some of this information might have been acquired in the course of centuries but much of it never could have been gained in any way other than by experiments on animals.

One might give detailed accounts of hundreds of such instances in which valuable knowledge *has* been acquired by experiments on animals. But these few examples should serve to refute in the open mind the claim that animal experiments have not brought any useful information to us.

Let us now consider the premises upon which the antivivisectionist attempts to build up a

logical argument to justify or to camouflage or to excuse his own emotional instability. The first proposition is that man has no right to profit by the exploitation of lower animals. Every law-making body has recognized a certain limitation on such use. We have laws prohibiting the killing or caging of certain birds, such as the cardinal, although it is legitimate to imprison for life the canary and parakeet. The fact that they may have been reared in captivity does not alter the fact that they are living in an unnatural environment.

Very few antivivisectionists are also vegetarians; they are wholly unaffected by the killing of thousands of cattle, hogs and sheep for food. Many of them would consider it a hardship to dispense with furs derived from animals. Under primitive conditions furs and wool were necessary for the continued existence of man; but no one can logically argue that either class of clothing is indispensable under modern conditions.

We consider the confinement of animals in a zoological garden as an educational procedure; but just how do we acquire the ethical justification for so doing?

Until man learned by experiment how to grow cattle without horns, it was a custom to "dehorn" them by a variety of methods, none of which can be classed as painless. Every stock breeder performs the process of emasculation without the use of anesthetics, although the shock from pain is often so great that I have seen such animals lie in a state of collapse for hours.

Sportsmen slaughter game birds and animals by the thousands every year without the slightest concern for the suffering that may result from their enjoyment. I have yet to hear or know of an antivivisectionist voicing any strong protest against this practice.

Now, if we want to be strictly logical, just what right has man to own a dog at all, or to restrict him to a kennel? The possession may bring pleasure and occasionally some practical benefit. But, for the most part, man's domination of the canine species has only made of him a parasite, perfectly content to feed on man's bounty.

So-called renegade dogs in the wild state are probably much happier than their domesticated siblings, and are extraordinarily self-reliant in their own welfare. That they lose much of this

in domesticity is apparent from the ease with which most of them become lost and bewildered when removed from their accustomed habitat. It can scarcely be argued then that man has conferred any great benefit on the dog by assuming ownership.

The extreme but not illogical culmination of this line of reasoning would mean the discontinuance of the eating and wearing of all animal products; turning loose all animals in the zoo, and in the pet shop; disposing of draught and riding horses and other work animals.

Of course, this catastrophe will never result because the antivivisectionists are not logical in their reasoning. Even if they were, the common sense of the average citizen would assert itself, for everyone realizes fully that the human race could never have attained to its present degree of advancement, probably could not have survived, without the utilization of benefits to be derived by using and even killing animals.

The second point has been partially answered already. It would require a book to even list all the benefits that have come from animal experiments. Either the "antis" who make this claim are ridiculously ignorant or wilfully dishonest. The author will be glad to furnish further detailed evidence on this point to interested readers.

The claim that all animal experiments are cruel is likewise evidence of ignorance or dishonesty. Of course, opinions differ as to what constitutes cruelty. The legal definition is based, not on the actual procedure to which the animal is subjected, but on the practical necessity involved. In the strictest sense it is cruel to kill meat animals. It might also be considered cruel to draw blood from a dog's veins.

That many animals, dogs included, do experience pain in survival experiments is freely admitted. That such pain is ever inflicted except in the sincere belief that the knowledge to be gained is indispensable, directly or indirectly to human welfare, is flatly denied. Probably not more than 10 per cent. of the dogs used for experimental purposes are subjected to survival experiments. The others are always dispatched under anesthesia.

One can scarcely claim that the methods of killing stray, unclaimed dogs in the dog pound are exactly devoid of suffering. In the Chicago pound, for example, the method officially ap-

proved by the Humane Society and other similar groups is to enclose a large group of dogs in a tight building into which gas is directed. Anyone who has witnessed this procedure can scarcely argue that anesthetization is *more* cruel. It sometimes requires a considerable period of this treatment before all of the dogs are pronounced dead. Cruelty thus becomes a relative matter.

There are definite physiological criteria by which the degree of pain experienced by man or animal may be judged. Many careful observations indicate clearly that the dog is much less sensitive to pain than man. I have seen untrained dogs lie unconfined on an operating table without flinching while blood was drawn from the veins or even from the heart. The physiological signs do not give any evidence of painful reactions. Sometimes a frightened dog in strange environment will howl, or fight, before being subjected to any sort of manipulation. This, however, cannot be designated as pain.

The fourth premise, that experimenters are actuated by sadistic inclinations, likewise reveals the ignorance of the accusers. After many years of personal acquaintance with a rather large group of experimenters who, I believe, are fairly representative of the whole group, I can truthfully say that I know of only one man who ever gave evidence of *gloating* over his work. Fortunately, he is no longer active in the field. I have heard of one other man, who was severely criticized by the 10th International Physiological Congress in Paris for experiments in which, the most liberal investigators agreed, he inflicted unnecessary suffering. For myself, I have never succeeded in conquering a feeling of nausea whenever it becomes necessary to perform an experiment on an animal. Consequently, I naturally exhaust every effort to find another way of learning what I need to know. And it is always with regret that I finally resort to such an experiment.

I saw one student in my class who seemed to display an unnecessarily cold-blooded attitude toward the experiments he was asked to perform on animals. I confess to a certain feeling of repugnance toward him until I discovered him just after a laboratory period had closed in an anteroom very ill. Upon questioning him I learned that this was an invariable sequel of a laboratory period in which animals were used.

I offered to excuse him from further partici-

pation in such experiments. He refused, saying, "No, I am studying medicine primarily so that I may try to cure my sister who is now a hopeless invalid. I am going to need all the information I can get."

A sadist? If so, may Providence send us more of his kind!

Passing over for the moment the fifth and sixth premises, let us consider the seventh. That certain diseases have increased under conditions of modern civilization cannot be denied. Diabetes is cited as one of these. The arguments of the "anti" are somewhat as follows: Insulin is one of the modern triumphs of animal experiment. Therefore, diabetes should decrease if insulin is any good. Since the incidence of diabetes has increased, the forty years of research that culminated in the discovery are wasted. Again we have a masterpiece of reasoning based on pure ignorance!

Diabetes is increasing because it is a disease, one of the etiological factors of which is nervous stress. Modern conditions have subjected the human race to greater stress, hence, the increased morbidity rate. Insulin was never claimed to be either a preventive or a cure. It is only one of several methods of control, the most efficient one, in fact, for the advanced stages of the disease.

The list of other diseases that we can now control through knowledge gained by experiments on animals is too long to include here. Specific evidence will be furnished to the reader who desires it. That other diseases have not yet been conquered means only that not enough experimental investigation has been done. Doesn't it seem rather peculiar reasoning to insist that such efforts should cease merely because these efforts have not yet been crowned by success.

When you desire expert advice about your automobile you go to an automobile mechanic and you usually take his advice without demurrer. If you want legal advice you consult an attorney and thereby concede that he knows more about it than you do. If you want to build a house, regardless of what your ideas may be, you concede to the architect a greater amount of technical knowledge than you have. In short, the man who devotes most time to a subject usually knows more about it than you do. Sometimes your judgment may prove to be

better than that of the expert whom you consult. But the chances are against you by large odds.

Yet here we find a group of people who have generally had no technical knowledge of the subject on which they presume to pass judgment; most of whom have never been in a laboratory; who, as a group, are not now and never have contributed anything to human welfare and happiness; whose principal weapons are villification and distortion of fact, setting themselves up as judges of a highly technical procedure that happens to disturb their over-delicate sensibilities.

On the other hand, we find a group of men and women, distinguished for individuality of thought, who have devoted years to preliminary study and training; people of intelligence and integrity in other phases of contact with society; actuated by motives of highest humanitarianism; most of whom could have earned several times their present incomes in other activities; some of them even working without compensation; making available to everyone, without restraint, such knowledge as they derive. These are the people whom the "anti" condemns as brutes, sadists, profiteers and fools! Dear reader, learn to know these men, then make your choice.

Returning to the fifth premise that animal experiments are done by irresponsible enthusiasts, I am sure that anyone who follows the long period of training which every investigator must undergo before he is permitted to use the facilities of a university laboratory for animal experiments, will concede that the novice can scarcely be irresponsible. There are instances where untrained and irresponsible persons have undertaken experiments outside of the laboratories. Such practices are frowned upon by the recognized investigators quite as darkly as by the "anti". The counterpart of the bootlegger exists in every profession. We have men who make counterfeit money. Should we dismantle the United States mint because of them? This would be quite as logical as to stop all investigative effort because an occasional student or other scientific putterer does experiments solely to satisfy a curiosity that is not constructive.

The sixth premise is in some respects the most important at the present moment because upon it is based one of the most serious attacks the "antis" have ever made on animal experimentation in this country. It is claimed that investi-

gators depend on the theft of animals that are the private property of others. This charge is confined to the use of cats and dogs since all other animals are purchased through regular dealers who raise them for this purpose. Long ago all institutions in which such work is done took definite steps to prevent the illegal use of animals. So far as personal experience and observation go I know of no instance of the use of cats except those purchased from legal owners who no longer desired to keep them and did not want to go to the trouble of disposing of them. Usually, such cats, unless sold, are allowed to drift away and become pitiful derelicts, living on bits of garbage or offal of the streets and alleys, drifting in fear and terror until killed by roving dogs or street urchins, or dying in misery from starvation or some one of the diseases which invariably overtake them if they are allowed to live long enough. In the latter case they become a serious health menace in any city, not only to human beings but to others of their kind and to dogs. Is it not better that they contribute something to knowledge than to eke out a miserable existence in the streets and alleys of the slums?

In case of dogs, research institutions have imposed stringent regulations as to the source of supply which an investigator may use. Pet dogs have been stolen in the past by a few unscrupulous investigators who have ultimately been eliminated from the institutions in which the work was done.

Because I once inadvertently allowed a student to bring into my laboratory a dog which he represented to me as legal property, both the student and I were required by the head of the department to pay \$25.00 each to the original owner. If one were inclined to be unscrupulous, not more than one such experience would be ample to convert an overambitious embryo investigator to a different point of view.

Every city of any size operates a dog pound to which stray dogs or unlicensed dogs are brought and kept for a legally specified time in case owners wish to reclaim them. If not claimed, they are then killed in some manner usually specified by the local humane society.

The practice of research institutions with regard to impounded dogs varies in different cities. In Chicago, for many years the research institutions have secured dogs from the pound, *only after they had been held until the pound*

master was satisfied that they would not be reclaimed.

No fee was paid for these dogs, as it was considered an economical method of disposing of them. They were delivered by order of the Commissioner of Health under authority from the Mayor, who was empowered by ordinance to dispose of them after the legal time limit had expired. The records of such deliveries are on file for a period of over fifteen years. They have not, therefore, been "bootlegged", as claimed by the "antis".

This practice proceeded in a regular manner, and there was little difficulty along this line until the Illinois Antivivisection Society secured the services of an able and efficient publicity expert as its executive secretary. It has been stated that his salary was paid by a prominent actor. He promptly instituted a vigorous campaign for increased membership and began the extension of organizations throughout the country. The Society, in the late fall of 1928, began laying plans for a vigorous campaign to secure the passage of a bill by the State Legislature which would impose a heavy penalty for the use of *any sub-human animal form* for experimental purposes. This bill failed of passage.

Two years later another less drastic bill was introduced and again failed of passage. After the hearing on this bill in Springfield, Mrs. Charlotte Hunt, then President of the Chicago Humane Education Society, stated, in effect, to the writer and to Dr. A. B. Luckhardt, "Very well, if we can't beat you in Springfield we will take the dog pound from you." This is not a verbatim quotation, but the sense of her declaration was as stated.

In the summer of 1931 this threat was carried into effect by the passage of an ordinance prohibiting the disposition of impounded dogs to the research institutions. Through the efforts of the Illinois Society for the Protection of Medical Research, this ordinance was subsequently replaced by another ordinance restoring the previous privilege of securing dogs from the pound for experimental purposes.

Since that time, the various organizations composed of the emotional humanitarians have kept up a continual battle, either through the court, in an effort to have the city enjoined from exercising the legal right of the chief executive

to dispose of the dogs in the pound as he sees fit, or through vitriolic attacks through the newspapers on the experimental laboratories and institutions, in which many unsubstantiated claims are made.

There now exists ample legal provision for the punishment of individuals for cruelty to animals. If the claims of these antivivisectionists are true, why then do they not resort to the legal provisions now available? Instead of attempting to prosecute individuals by means of the laws now available, they confine their activities entirely to agitation for new laws. It is quite obvious to any one who will review the facts dispassionately that both the claims of cruelty and the claims of mismanagement of the dog pound with relation to the disposition of pound dogs, are poorly camouflaged efforts on the part of these emotionally unstable individuals to impose restriction on scientific research solely because they themselves do not like it.

Another device used by the antivivisectionist reveals clearly the unfair attitude of these people. On their letterhead appears a list of prominent individuals who are opposed to animal experimentation. Among these are several individuals who have been dead for many years and who cannot, therefore, have viewed the practice in the light of modern development. There are others with whom the writer has communicated personally, and who have, in a very definite manner, repudiated all allegiance to the antivivisection movement.

I have on my desk, at the moment, a letter from a prominent Chicago attorney whose name appears in this list, in which he repudiates all responsibility for his name having been included therein. As stated before, this is an unimportant point, but it reveals the workings of the antivivisectionist's mind. If the antivivisectionist was willing to confine his activities and statements to facts, one might have more sympathy with him and be more willing to concede to him, at least a misguided, emotional motive; but when he deliberately distorts facts and misuses statements from disinterested parties in furtherance of his campaign, then we must conclude that the motive is an entirely selfish one.

Those readers who would study this matter a little more deeply are admonished to secure a copy of an article written by Professor John

Dewey, originally appearing in the *Atlantic Monthly*, and subsequently reprinted in *Hygeia*, the health magazine, in February, 1931. This article is entitled "The ethics of animal experimentation from the viewpoint of a philosopher". Here is a man who has always displayed the highest type of humanitarian interest, who had no personal motive in the writing of this article, who was not requested or urged to write it by anyone, but who wrote it solely because he felt that the public did not sufficiently understand the ethics of this practice. In a clear, unbiased manner he has set forth simply, so that anyone may understand, the principles which actuate the scientific investigator in using animals for experimental purposes in the further acquisition of knowledge which may be of value to others.

We have now presented some definite facts and some arguments. In the last analysis, however, the public must choose whether it is desirable to have medical and dental students turned loose with less knowledge than the maximum that may be gained, or whether it is desirable to have these men trained more highly in each successive generation and given a maximum degree of efficiency in the practice of their profession. It is for the public to decide whether the misguided emotions of an uninformed minority are going to dominate the direction of the development of knowledge which may affect the entire population.

Because of the recent acquisition of a bequest left to the National Antivivisection Society by a wealthy matron, this Society has now declared its intentions to introduce a legislative program into 42 states during the next year. It means, therefore, that the people of these states will have a chance to make this decision for themselves. With all confidence in the ultimate intelligence of the American people, I, as an active investigator using animals nearly every day for experimental purposes, am willing to leave the decision in the hands of the people of the United States. If it is the public decision that animal experiment shall cease, I and every other investigator will still find plenty to do. Our only regret will be that we will not be able to accomplish as much as we have reason to believe we would have done otherwise. Contrary to the claims of the antivivisectionist that we must do this work to hold our jobs, we will go on as before, finding

plenty of activity—activity which in some instances will be much more pleasing and congenial.

Are we going to revert to a state of civilization in which animal worship will again have a place in practical everyday affairs? Many prominent antivivisectionists with whom I have corresponded have actually put forth the claim that the dog is superior to man in certain elements of character. Volumes have been written about the nobility of character of "man's best friend." Occasionally, an individual dog will display all the nobility of character with which romanticists have endowed the species. But when it comes to a dispassionate evaluation of facts, the human being must continue to hold the preeminent place in the scheme of creation. The horse and cow have certainly contributed far more to the progress of human civilization than the dog.

Shall we then elevate him to a place of immunity from responsibility to man? Various animals have been made objects of such worship. In some parts of the world even the tiger may kill human beings with impunity. Apparently, there are those in modern society who would treat the dog in the same manner. This tendency is of far more serious import to society at large than to the medical profession alone. If man's welfare is to be pushed into the background in favor of dogs in general, if the major portion of society accepts this place, then one must perforce feel considerable pessimism about the future of the human race.

DANGEROUS DINITROPHENOL

"... Patients who have hypertension can be medicated with dinitrophenol like other patients. As they lose weight the hypertension is usually improved." It is perhaps malignant neutropenia occurring during dinitrophenol medication that has aroused the greatest professional alarm. Although Tainter and his co-workers have seen no cases of agranulocytosis and have observed no other abnormalities of the blood affecting the hemoglobin or the fragility of the red cells, they feel that the possibility of agranulocytosis must be borne in mind pending further observations.

There seems to be agreement at present that dinitrophenol is a drug of potential dangers when used indiscriminately. Its sale should be restricted to that ordered by the physician's prescription and its use by medical men should be carefully supervised. Probably it should be employed only when reduction of obesity is important and when ordinary dietary methods have failed.—*Jour. A. M. A.*, Dec. 22, 1934.

ADEQUATE HYDRATION IN INFANCY

HENRY E. IRISH, M. D.

CHICAGO

Mr. President and Fellow Physicians: I have selected this subject for presentation today because I know of no therapeutic measure which plays so important a part in reducing the mortality rate in acute infantile illness.

All physicians appreciate the need of fluids in infants who are sick, and it is a common order to "push fluids," which is a good but ambiguous phrase. Few realize the relatively greater fluid intake required by infants as compared to adults.

Normal healthy infants at breast will suckle milk, which is about 85 per cent. water, in amounts varying from two and one-half to four ounces to their pound of body weight in twenty-four hours. Thus, an infant weighing twenty pounds may receive from forty-five to eighty ounces, which approximates the intake of many adults and emphasizes the danger of ignoring adequate fluid intake in illness.

Man may be regarded as a marine animal whose cells live in an ocean of sea water bounded by his skin and mucous membranes. Sea water contains about the same percentage of sodium chloride as human blood, 0.6 to 0.9%, which is about normal salt solution.

In acute illness, there is increased demand for fluids. Fever causes greater water losses in the increased respiration and skin evaporation and if vomiting and diarrhea ensue, the water loss may be enormous and tragic.

An additional complicating factor arises because many sick infants show a determined disinclination to take fluids by mouth in more than sips, thereby reducing the twenty-four-hour intake to dangerous levels. This is most marked when there are painful lesions in the mouth, lips or throat, or if the nares or throat are occluded by secretion, thereby preventing continuous suckling. Likewise, if the reflexes are dulled by disease, then indifference, aversion or non-cooperation may be manifest.

The sites of water intake, elimination and storage in the body are graphically diagrammed by Gamble (Fig. I). The natural site of intake is the mouth, thence to the stomach, which, it will be noted, is an organ of storage and propul-

sion and in certain disease conditions, elimination, whereas absorption occurs in the lymphatics of the intestine. If the stomach is tolerant (absence of vomiting), fluid if not voluntarily swallowed can be given by nasal gavage, oral gavage or by the fastening of a nasal tube so that it ends about halfway down the esophagus. In premature, asthenic, lethargic or comatose infants when the swallowing reflex is preserved, a device made with a short piece of rubber tubing (three inches)

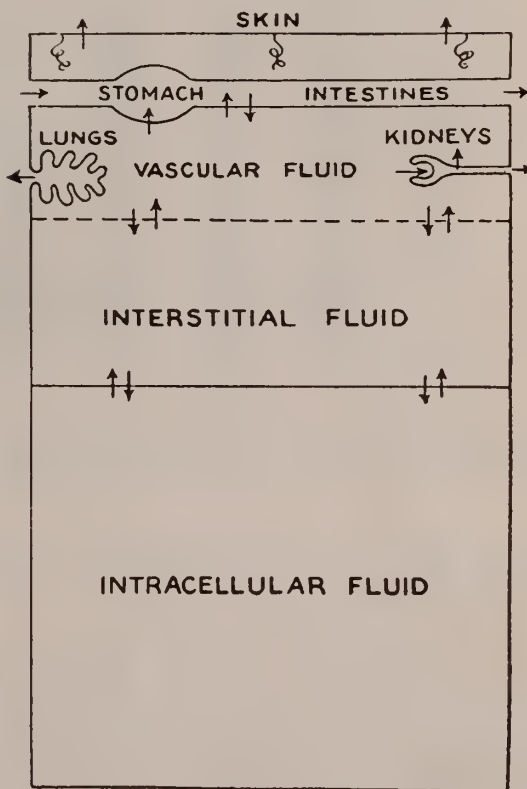


Fig. 1. Water Exchange in the Body. (Adapted from Gamble, N. Eng. J. Med., 1929, 201:909.)

can be affixed to a large medicine dropper, or better, a glass piston syringe, and the fluid can be directed to the buccal mucosa and expelled in drops. A surprisingly large amount of fluid can be introduced in this way.

If after a short test of the foregoing methods, none are applicable or successful then a choice must be made between the rectal, subcutaneous, intraperitoneal and intravenous route. The rectum in infants is easily irritated to expulsion and there is complete absence of retention cooperation, therefore, this route is usually not of much use. It may be of service for a short time if the following precautions are observed. The fluid

must be of body temperature, nearly isotonic and nearly neutral. The tube must be well lubricated (10 to 15 French) and inserted slowly and gently. The rate of flow must be slow, ten to fifteen drops per minute, to avoid distention and expulsion. The buttocks should be raised and the head lowered. If the buttocks are taped together with one inch adhesive, retention may be aided and the tube can be taped to this binding tape.

there is marked distention, peritoneal adhesions or inflammations. The injection site is located by drawing a line from the middle of Poupart's ligament to the navel, trisecting it, and using the point joining the middle and upper thirds. The needle is directed obtusely downward and cephalically.

Continuous intravenous drip is of great service in desperate cases that require very large amounts

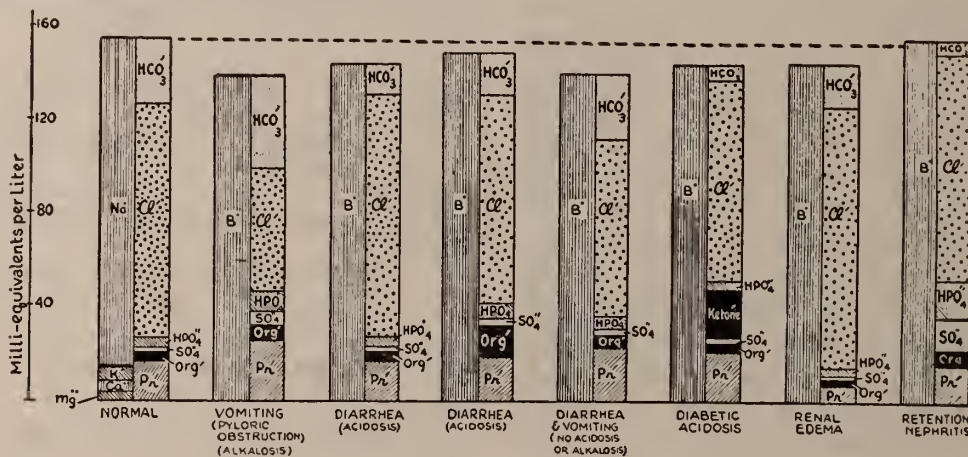


Fig. 2. Plasma Electrolyte Pattern in Various Pathological Conditions. (From Holt's Diseases of Infancy and Childhood, 10th edition, D. Appleton, New York.)

(From Holt's Diseases of Infancy and Childhood, 10th Edition, D. Appleton, New York.)

Suitable opiates or sedatives may dull the expulsion reflex. Sugars, salt, alcohol and water are absorbable; proteins and fats are not.

Fluid is readily absorbed from the subcutaneous spaces and may be given in single injections of about 50 c.c. in one site at one time. Several sites may be used in succession so that 200 or 250 c.c. can be given in a short time. Some pain and shock may accompany the forcing if too rapid. Continuous drip admits of large amounts of fluid and is devoid of discomfort aside from the initial punctures. Suitable restraints to prevent the child from turning or contaminating the needles may be applied with bandages and adhesive. Patients can be hydrated for days and weeks with no apparent discomfort by this method. The best site for injection is the outer aspect of the thighs, the axillary region if dyspnea is absent, or the back if the child must or can lie on its abdomen. Constant surgical asepsis is imperative.

The intraperitoneal route is excellent for large amounts of fluid if the demand is immediate and urgent and 20 c.c. to the pound, if needed, can be injected. This route is not to be used if

of fluid promptly at a rate of flow not exceeding 10 c.c. per minute. The veins may be reached through the skin but if not accessible, there should be no hesitancy in exposing and cannulizing the vein under local anesthesia. In certain acute dehydrations with vomiting and diarrhea this method has proved dramatically curative. It can be continued for days if needed.

In any illness the fluid intake must be watched and if any suspicion of inadequacy exists, a fluid chart should be started, recording the time, amount taken, and amount retained orally. If the amount retained is not at least one and one-half ounces to the pound up to twenty pounds body weight for twenty-four hours, efforts to increase it must be instituted at once. This rate should be calculated every eight hours to prevent establishment of severe dehydration. In vomiting with diarrhea, larger amounts are needed. Certain healthy normal breast infants consume as much as four ounces to the pound in twenty-four hours but it is seldom necessary to attempt to force this amount in sickness. A minimum of one and one-half ounces to the pound of body weight for twenty-four hours up to one year

when the average weight is about twenty pounds, is sufficient. After one year it is rare for an infant to require more than three pints (1500 c.c. in twenty-four hours). Occasionally somewhat larger amounts are needed, as in severe diarrhea, but untoward results from superhydration are to be avoided.

The question arises as to what fluid is best adapted to the condition or disease present. All fluids, by whatever route given, are least irritating when nearly isotonic and at body temperature. Much has been written concerning the indications for particular fluids, and variations of opinions as to the effect and fate of the fluids proposed are many. From a practical standpoint without entering into a discussion of the chemistry involved (see Fig. 2), it will be granted as a generally accepted fact that where water alone is indicated, dextrose, five per cent. solution, is harmless and effective. Further action ascribed to five per cent. dextrose is that of supplying sugar to exhausted heart or other muscle; of sparing the liver glycogen; of acting as a diuretic especially in hypertonic (ten per cent.) solution, and of furnishing a buffer action in acidosis.

The salt solutions, normal salt, Richter's and Hartman's solution alike supply water and electrolytes. Much discussion as to the superiority of a solution of single electrolyte and multiple or balanced electrolytes has been recorded. Practically, little or no difference is seen clinically as the body appears able to adjust these solutions to its purposes. We have routinely adopted Hartman's solution because, theoretically at least, it obviates the necessity of attempting Ph determinations insofar as the added lactic acid can act in preventing or correcting a shift of the Ph in either the acidosis or alkalosis direction in both blood and tissues, which reactions may at the same time vary.

They are indicated in excessive salt loss, such as seen in diarrhea and severe vomiting and all are contraindicated in excessive salt retention, as in certain types of nephritis. In depressed states, the sluggishness of the circulation and the vital inability of the cells to absorb the solution may cause any fluid to fail in improving the symptoms. The caloric value of five per cent. dextrose is only about 100 calories to the liter, therefore, full nutrition can not be maintained by this

method or even by intravenous ten per cent. dextrose, but I have seen life sustained in cases of peritonitis for two weeks by five per cent. subcutaneous dextrose solutions alone.

Many infections in the injected area are reported. A fresh distillation of the water is of more importance than triple distillation and thorough cleansing of the skin, with careful observation of surgical technic is essential. Commercially prepared solutions in aseptic containers have given a minimum of trouble in our hands. The injection site may be the site of localization of general infections, which localization has seemed to presage the beginning of a favorable termination of the general infection in several instances.

Combinations of dextrose and salines can be used with excellent results simultaneously where dehydration, acidosis and salt loss co-exist.

A supply of solutions with required needles and tubing should be kept in readiness for prompt use in emergencies, so that time can be saved and life spared.

5312 Washington Boulevard.

THE PATHOLOGY OF AVITAMINOSIS

HARVEY S. THATCHER, M. D.,
LITTLE ROCK, ARKANSAS

Since the researches of Funk¹ (1911-1919), in which he corroborated the work of Eijkmann² and others (producing polyneuritis in pigeons), research in the relationship of vitamins to nutrition has gone forward with tremendous accomplishment. Funk gave the name "vitamine" to the substances which prevented beri-beri, pellagra, sprue, scurvy and rickets. When one has studied the monographs of Casimir Funk one is overwhelmed with the original resources of a master mind applied to avitaminosis. An immense treasure-house has been discovered in the pathology of avitaminosis, and this valuable material has certain prospects of becoming more vast and more productive in the field of medicine.

Chairman's Address, Section on Pathology, Southern Medical Association, Twenty-Eighth Annual Meeting, San Antonio, Texas, November 13-16, 1934.

From the Department of Pathology, University of Arkansas School of Medicine, Little Rock, Ark.

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In this discussion six vitamins are considered.

VITAMIN A DEFICIENCY

Before the work of Mori³ (1922) decline of body weight and failure of reproduction reported by Osborne and Mendel⁴ (1913) and respiratory disturbances described by McCollum⁵ (1917) were the principal changes observed in vitamin A deficiency. Wolbach and Howe⁶ (1925) emphasized the specific changes in epithelial tissues, including metaplasia in pancreatic ducts and renal pelvises. They also found emaciation, localized edema of testes, submaxillary gland and connective tissue structures of lungs, and focal myocardial lesions. Although their diets were also deficient in vitamin D, other workers did not find any differences when A alone was lacking in the diet.

Mori (1922) described in rats suffering from vitamin A deficiency atrophy of the cells of the para-ocular glands, xerosis conjunctivæ and xerophthalmia leading to keratomalacia and keratinization of the lining cells of the mucosa of the larynx, trachea and ducts of the salivary glands. The work of Fridericia and Holm⁷ (1925) related night blindness (nyctalopia) and experimentally proved the delay or failure of development of visual purple in animals lacking vitamin A. Holm's experiments indicated that rats' eyes behave about like human eyes in regard to the function of the uvea, or as to day-sight and night-sight. Aykroyd⁸ (1930); from his studies in Newfoundland and Labrador, gave evidence which related this deficiency to functional night-blindness in man, because those on a poor diet developed nyctalopia. He suggested that the term "nutritional dys-scotopia" be given this condition. These studies were related to adults. Pillat's⁹ (1929) studies place xerosis of the conjunctivæ as the second stage, night blindness being the first. Xerosis of the cornea next occurred with inactivity of the para-ocular glands and lessened secretion of tears. Keratomalacia was the last stage with infection and blindness. Conjunctival pigmentation was one of the outstanding changes. He reported six cases, describing their passage from simple but usually severe xerosis epithelialis conjunctivæ to xerosis corneæ, to keratomalacia, a disease of the ectodermal elements. Nyctalopia is a disease of the epithelial elements of the eye,

the rods and cones of the pigment epithelium of the retina.

Daniels *et al.*¹⁰ (1923) found that rats afflicted with xerophthalmia often had suppurations in the nasal cavities and sinuses. Hetler¹¹ (1924) obtained the same reactions in the monkey and rabbit with metaplasia of the maxillary sinuses and the mucous membrane of the turbinates and nasal septum. There was calcification of the compact bones of the ear under the membrane. Evans and Bishop¹² (1922) reported cornified cells in the vaginal epithelium as the first sign of vitamin A deficiency. Later (1933) they considered the "vaginal smear method used as a quantitative method for determination of vitamin A." Cornification occurred much earlier than xerophthalmia. Mason¹³ (1933) found that changes in the testes occurred earlier than other changes with marked sloughing of the germinal cells and reduction of size of the tubules with spermatogenesis continuing for some time until the process became too severe. Although the testes were similar to those in inanition, yet they did not recover function so quickly. Sampson and Korenschevsky¹⁴ (1932) also found degenerative changes in the seminiferous epithelium.

Bergland, Keefer and Yang¹⁵ (1929) reported secondary anemia in Chinese cured with cod liver oil. Cramer, Drew and Mottram¹⁶ (1922) found thrombopenia in rats, but this has not been definitely established. In advanced stages of their animals there was a marked secondary anemia. Sure and Buchanan¹⁷ (1932) found a relative increase in polymorphonuclear leukocytes and a corresponding decrease in lymphocytes in the majority of pathological animals.

Manville¹⁸ (1933) reported numerous gastric ulcers in rats on an A deficient diet. This work should be confirmed as many careful workers have not found peptic ulcers.

Mellanby¹⁹ has found that diets deficient in vitamin A or carotene, in puppies caused demyelination of the nerve fibers of the spinal cord. This subject requires further investigation. Changes in structure of the osteoblasts causing bone defects with later changes in odontoblasts and pulp tissue were described by Simola²⁰ (1932). Osteoporosis was reported by Shipley, McCollum and Simmonds²¹ (1921). Wolbach and Howe²² (1933) considered that vitamin A

deficiency is the most important of the known vitamin deficiencies in its effect upon tooth formation. Their studies were on the incisor teeth of rats and guinea pigs. There is early atrophy of ameloblasts and then the remainder of the organ atrophies. This is in accord with May Mellanby's²³ (1928) conclusions.

Green and Mellanby²⁴ (1928) stressed the fact that rats developed infection when the diet was deficient in vitamin A, and they concluded that vitamin A is an anti-infective agent. Tyson and Smith²⁵ (1929) concluded that since hyperplasia in the renal pelvis is greater than keratinization, infection is always present in the earliest stages and in late cases dominates the picture. They also found renal calculi. Green, Pindar, Davis and Mellanby²⁶ (1931) reported that vitamin A could be used as a prophylactic agent against puerperal infections. Thatcher and Sure²⁷ (1931), in thirty-eight out of fifty-three rats, found metaplastic changes before decline in body weight or before complete cessation of growth took place. Many rats had metaplastic changes in the posterior portion of the tongue, in the salivary gland and in the respiratory and urinary tracts; some of them had incipient ophthalmia or persistence of the cornified stage of estrum, as the only sign of this deficiency, and others had no external signs of avitaminosis. Bronchitis and pneumonia were also found in several animals, which were gaining in weight before the termination of the experiment. When applied to the human Barenberg and Lewis²⁸ (1933) and Hess *et al.*²⁹ (1933) did not observe results indicating resistance to infections. Turner and Loew³⁰ (1933) found carotene protective against bacterial invasion of the upper respiratory tract in rats. In spite of the research to date on this subject, it has not been proved that pneumonias or other types of infections are dependent upon vitamin A deficiency. The important discovery by Seidmon and Arnold³¹ (1932) of the influence of vitamin A (as well as B) upon the intestinal acid-base equilibrium and bacterial flora (deficiency causing a denser bacterial population within the intestinal lumen) is evidence of susceptibility of A deficient animals to infection.

Xerophthalmia and keratomalacia have often been reported clinically. Autopsies of children suffering from A deficiency have been reported

by Block,³² Wilson and Dubois³³ and Thatcher and Sure.²⁷ Our case clinically and pathologically was that of an infant suffering from vitamin A deficiency. Our histopathologic findings did not conform exactly to those in our rats, but the child had been given cod liver oil after hospitalization. Surely from this evidence certain individuals lacking vitamin A for a long period are susceptible to infections.

VITAMIN B DEFICIENCY

McCollum and Davis³⁴ (1915) discovered that rats lost weight and developed paralysis of the hind legs on a diet which we now know lacked vitamin B. Polyneuritis in chickens long ago had been observed by Eijkmann. The first studies on the antineuritic vitamin B did not separate the antipellagric factor. Much of the first research was by McCarrison³⁵ (1919-1920) on pigeons fed polished rice. These pigeons developed polyneuritis with loss of coordination of the muscles. The organs which were atrophic were the thymus, testicles, spleen, ovaries, pancreas, heart, liver, kidneys, stomach, thyroid gland, and brain, in the order of severity. The suprarenals became hypertrophic. Edema occurred with this hypertrophy. These changes, except those of the brain, were present in inanition. Atrophy of the reproductive organs was emphasized. There was little atrophy of the central nervous system. The bones were thinned and there was loss of bone marrow. McCarrison also found atrophy of all of the coats of the intestines, atrophy of the myenteron, degenerative changes in the myenteric plexus of Auerbach, atrophic and inflammatory changes in the mucous membrane and atrophy of lymphoid structures. As there were other deficiencies in the diet those pathologic changes could not be due entirely to lack of vitamin B.

One cannot overlook the careful work of Vedder and Clark³⁶ (1922) on polyneuritis gallinarum. They did not regard polyneuritis gallinarum as identical with beri beri in man, but found at that time more similarity than differences between the two diseases.

Marrian³⁷ (1928) excluded the starvation factor and related suprarenal hypertrophy to vitamin B deficiency. Funk and Douglas³⁸ (1914) related human and avian beri beri. They found atrophy of the various organs and disappear-

ance of the thymus in pigeons. Cramer, Drew and Mottram³⁹ (1921, 1922) reported atrophy of the lymphoid tissue and lymphopenia in rats with loss of weight, emaciation and subnormal temperature. Zimmerman and Burach⁴⁰ (1931) described in dogs, myelin degeneration in the vagus, brachial and sciatic nerves with focal disseminated zones of demyelination in spinal cords and focal degenerative changes in pons and cerebrum. Irregular loss of myelin, chiefly in the white matter of the spinal cord, less marked in the cerebral cortex, has been reported by Gildea, Kattwinkel and Castle⁴¹ (1930). Moore, Plymate and Andrew⁴² (1932), in their extensive examination of peripheral nerves in rats, do not consider myelin degeneration in these nerves as a valid criterion of vitamin B deficiency.

Woolard⁴³ (1927) observed morbid changes in rats on a B deficient diet and in rats deprived of food, in the intermuscular medullated motor and sensory nerves and their endings. These changes subsided as nerves were examined further from the muscles, except that the lesions in starved animals were not so marked.

Prickett's⁴⁴ (1934) data indicated that the lesions in rats were central, rather than peripheral which gave symptoms. He found hemorrhages which involved the nucleus of Dieters, the chief vestibular nucleus, the nucleus of Bechterem, and the nucleus solitarius in approximately 75 per cent. of deficient animals.

Sure and Schilling⁴⁵ (1928) found in nurslings of albino rats hemorrhages in the osteogenic tissues, especially in the occipito-parietal sutures. Atrophy of the spleen, hypertrophy of the suprarenal glands and heart, failure of growth, and dilatation of the stomach with undigested food, were the principal changes observed by Sure, Thatcher and Walker⁴⁶ (1931). At that time we found ulcers of the stomach and later Sure and Thatcher⁴⁷ (1932, 1933) also reported gastric ulcers (acute and chronic), proving the specific influence of vitamin B for the production of these ulcers by making allowance for the plane of nutrition. We did not find ulcers of the duodena. This might be explained by failure of vagotonus, as nerve changes occur in this deficiency.

Sure and Buchanan⁴⁸ (1932) found lympho-

penia and a corresponding leukocytosis in albino rats.

The conclusion of Moore and Plymate⁴⁹ (1932) that stasis in dilated stomachs and that pylorospasm in rat litters born on a diet lacking vitamin B might relate congenital pyloric stenosis to a deficiency of this vitamin. Atrophic glossitis found in rats on a B deficient diet has been related to man by Hutter, Middleton and Steenbock⁵⁰ (1933).

According to Moore and Barlow⁵¹ (1931) the histological changes in bone marrow in pure vitamin B deficiency in pigeons are degeneration and edema and slight endothelial proliferation of small vascular channels, but with active hematopoiesis. The anemia is partly a starvation anemia.

The main pathologic changes in beri beri in man are generalized edema (wet form); degenerative changes in nerves, myocardium and voluntary muscles, dilatation of the heart, and hypertrophy of the right ventricle, and atrophy of muscles (dry form).

A recent important paper by Balford and Talpade⁵² (1932) calls attention to the fact that in Southern India, where milled rice is the staple diet, nearly all pregnant females are in a state of avitaminosis. Naturally the infant mortality rate is tremendous. In Japan 17,000 deaths are said to occur from beri beri every year. In western countries there is incipient beri beri in infants. Hoobler⁵³ (1928) has reported this in the United States.

Shifting the experimental evidence to man, British and American scientists have accepted the B deficiency theory for the etiology of beri beri. Many Japanese scientists are somewhat skeptical about this origin, and many adhere to the infection theory. It must be remembered that an organism was discovered by Matsumura⁵⁴ *et al.* of Japan in 1929, a bacillus isolated from the feces of a considerable number of patients suffering from beri beri. They found this organism also in experimental animals suffering from beri beri.

VITAMIN C DEFICIENCY

Scurvy has been known for centuries, but only during the last few years has the antiscorbutic vitamin been linked with the malady. It has been common knowledge that scurvy is a disease of sailors. When Jacques Cartier⁵⁵ in 1536 made

his memorable voyage up the St. Lawrence River he lost many of his crew from scurvy. Upon the advice of Indians he gave the remaining men a decoction of bark and leaves of spruce, which they took every other day. Cartier wrote:

"It wrought so well that if all the physicians of Montpellier and Louvaine had been there with all the drugs of Alexandria, they would not have done as much in one yere as that tree did in sixe days."

The tree is believed to be the American spruce from which he made the mixture. It remained for us during this century to learn that the needles contain vitamin C.

In the medical history of all wars scurvy plays an important role. During the World War thousands of soldiers and civilians were incapacitated by it.

The pathologic conditions of scurvy in man have long been known. Hemorrhages, which may occur in any organ, but are especially noticeable in the gums, were emphasized more than other changes. Anasarca, changes in the heart as fatty degeneration, dilatation, enlargement of the right heart, congestion of the lungs, hyperplasia of lymphoid tissue, including Peyer's patches; congestion and enlargement of the spleen; congestion and hemorrhages in the kidneys; fractures of the bones, with subperiosteal hemorrhages, are among the most important findings. Rickets and infantile scurvy are often associated.

The excellent monograph of Meyer and McCormick⁵⁶ (1928) described the most important changes in guinea pigs on a vitamin C deficient diet as hemorrhages in the skin, subcutaneous tissue, muscles, urinary bladder, periosteal, periodontia, intestines, gallbladder, brain, spinal cord, posterior root ganglia, and nerve trunks; fatty infiltration and degeneration of liver, kidneys, suprarenals, lungs, some skeletal muscles, and so on. There was widely distributed liquefaction of cytoplasm in cell walls resulting in destruction of cartilage cells and cartilage matrix, detachment of periosteal and periodontal and reduction of the caliber of bones. There were widespread hemorrhages in bones and teeth, decrease in red blood cells and increase in polymorphonuclear leukocytes. Höjer⁵⁷ (1924) in his extensive studies found that odontoblasts and osteoblasts lost their typical appearance, and the product which they yielded deviated more and more from the normal formation. There was

general atrophy of connective tissue, muscles, lymphoid tissue, liver, salivary glands, suprarenals, and kidneys. Wolbach and Howe⁵⁸ (1926), with due credit to the work of Aschoff and Koch⁵⁹ (1919) and Höjer⁵⁷, concluded that the condition of scorbutus is inability of the supporting tissues to produce and maintain intercellular substances. There were defects in the capillary walls due to failure of endothelial cells to form cement substance, and this defect applied to connective tissue and teeth. They criticized Höjer's findings of osteodentin or pulp bone, because his diets were not entirely deficient. They found a shrunken pulp free from dentin floating in liquid. With orange juice the dentin appeared. They found that production of matrix of bone ceases and maintenance of existing bone matrix is interfered with as shown by osteoporosis. In repair of bone there was absence of matrix. There was avascular organization without the formation of collagen or bone matrix. Zilva and Wells⁶⁰ (1919) reported fibrosis or fibroid degeneration of the pulp of the teeth in monkeys and in guinea pigs. At that time they predicted caries of teeth in man. Marked defects in the teeth may occur in scurvy when the disease is in a mild form.

McCarrison discovered enlargement of the suprarenal glands in guinea pigs suffering from scurvy. The most characteristic lesions in these animals were said by Bessey, Menten and Kime⁶¹ (1934) to be depletion of fat and cholesterol from the cortex of the suprarenal.

Medes⁶² (1926) found degeneration of germinal epithelium in the testes of guinea pigs.

The study of the nervous system has been neglected, but Meyer and McCormick⁵⁶ (1928) reported degenerations in the peripheral nerves and in the large motor cells of the anterior horn. Hess⁶³ (1918) saw a large focal degeneration of the lumbar cord in a child with infantile scurvy.

During the war Aschoff and Koch⁵⁹ made exhaustive studies on prisoners (Turkish, German and Austrian) suffering from scurvy. There was a striking similarity in the pathologic changes observed by these scientists and others, with those changes described in the guinea pig.

Peptic ulcers in the guinea pig were related to a partial but chronic vitamin C deficiency by Smith and McConkey⁶⁴ (1933). The usual site was in the first portion of the duodenum

just distal to the pyloric sphincter. A few were in the pyloric portion of the stomach near the lesser curvature.

Presnell⁶⁵ (1934) reported a longer blood clotting time in this deficiency, as well as a diminution of blood platelets.

Hanke *et al.*⁶⁶ (1932) related dental caries to vitamin C deficiency in extensive studies of numerous children. Diseases of oral tissues, such as gingivitis, periodontitis, or dental caries, occurred in vitamin deficient diets, especially those lacking vitamin C. Vitamin D was also related by them to dental caries. They noted that caries increased during puberty, but not so greatly as was believed. They found that citrus fruit juice overcame in many individuals hereditary defects and the effects of caries during puberty. Hess⁶⁷ believed, in 1917, and continued to believe that infantile scurvy is not, however, a simple dietary disease but that diet allowed intestinal bacteria to elaborate toxins. Evidence is to this effect because McCollum and others found pathologic lesions in bones, similar to scurvy, in rats which suffered from polyneuritis.

The finding of a subdural hematoma in infantile scurvy by Gilman and Langer⁶⁸ (1932), with a summary of thirteen other proved cases from the literature, should call the attention of pathologists to this condition.

Few pregnancies in scorbutic guinea pigs, with abortion and resorption, were noted by Kramer, Herman and Brill⁶⁹ (1932).

Rinehard and Meltier⁷⁰ (1933) found that in uncomplicated scurvy, atrophic and degenerative changes occurred in the heart valves (collagenous stroma), but with added infection, degenerative and proliferative lesions were present. They were similar in type to the Achoff reaction in acute rheumatic fever. They also related the pathologic changes in the joints in the two diseases.

A recent communication by Prof. Szent-Györgyi⁷¹ (1934) before the British Association for the Advancement of Science states that ascorbic acid cures certain types of hemophilia (not the hereditary type), pyorrhea and hemorrhagic nephritis. Disfiguring colorations in the skin in Addison's disease can be bleached out by ascorbic acid.

The importance of vitamin C in the diet would appear to be greater than was formerly believed.

VITAMIN D DEFICIENCY

Rickets has also been known for many centuries. The first accurate description was made by Glisson in 1650. Before this century its etiology had been unraveled to a great degree, but its pathogenesis is still somewhat of an enigma.

The pathology of rickets is so well known that it is unnecessary to review it in detail. Much credit should be given to the great research of Schmorl⁷² (1909). The main changes are lack of calcification and growth of long bones, deformities of the thorax and pelvis, hyperemia of the periosteum, bending of the long bones, abnormal redness of marrow, and wide fontanelles with edges thin. Microscopically the costo-chondral and other epiphysal junctions are altered. There is lack of order in the zone of calcification, with overgrowth of the cellular layer and failure of calcification. There is rachitic periostitis. The marrow contains numerous sinuses and there may be atrophy of cellular elements. Enlargement of the spleen, thymus and lymphoid tissues, including tonsils and adenoids, occurs. There is a type of rickets reported by Macke and Todd⁷³ (1929), with no involvement of the osseous system, but other changes are noted.

The experimental production of rickets by Mellanby⁷⁴ (1919) revealed a new angle, since he found that cod liver oil prevented the disease more efficiently than did butter fat. McCollum *et al.*⁷⁵ developed the "line" test, a quick method to demonstrate rachitic changes, and pointed to a causative factor other than vitamin A deficiency, which later was known to be vitamin D.

Howland and Cramer⁷⁶ (1921) added important information, since they showed that calcium and phosphorus in the serum changed in rickets with a marked decrease in inorganic phosphorus. This led to the correlation of tetany with the low calcium form of rickets. In 1921 Sherman and Papenheimer⁷⁷ produced rickets in rats on a diet low in phosphorus. This was important, as calcium deficiency had been considered of great importance and the phosphorus ion CaPO_4 of no consequence in rickets, although calcium occurred mainly as the phosphate, CaPO_4 . Another Columbia University scientist, Zucker⁷⁸ (1921-22), produced rickets in rats on a diet with an excess of base over acid, and related it to the

production of the disease in the human when the acidity of the intestinal tract was lessened.

Sunlight had been known for a long time to have curative effects in rachitism. Another great step in the experimental work was the discovery that ultraviolet rays cured the disease (Huldschinsky⁷⁹ (1919), with numerous confirmations). It remained for a remarkable discovery to be made by Steenbock and Block⁸⁰ (1924). Rat rations irradiated by the mercury quartz lamp could be activated so that growth and bone calcification occurred to the same degree as when rats are irradiated. This knowledge has been greatly extended and in 1927 Rosenheim and Webster⁸¹ (1927) produced artificially the antirachitic vitamin by the action of ultraviolet light on ergosterol. Windaus⁸² (1927) and Hess⁸³ (1928) simultaneously found that ergosterol and not cholesterol was the "provitamin" of the antirachitic factor. Windaus, a Nobel prize winner, related the sterols to vitamin D. In this photochemical transformation into vitamin D he believed that there was only a stereochemical or structural rearrangement leading to an increase of the spatial size of the molecule.

Mrs. Mellanby and her coworkers²³ (1928), after experimental work on rachitic puppies, concluded that vitamin D had a beneficial effect on the teeth, causing them to harden and arresting dental caries. She claimed there was lack of sunlight in England, and that heavy clothing prevented the sun's rays from reaching the body. Since there was an increased use of cereals lacking vitamin D and a decrease in consumption of milk, butter and eggs, this vitamin was not supplied in sufficient quantities. This was her explanation for dental caries in England and America. Hess⁸⁴ (1929) agreed with this research, but considered there were other factors, also.

Lilly⁸⁵ (1932) did not produce experimental dental caries in the white rat on a vitamin D deficient diet. Templin and Steenbock⁸⁶ (1933) found that irradiation of rats' rations gave a marked improvement of dental structure; that on a low calcium diet the teeth were improved but not exactly normal.

Thatcher and Sure⁸⁷ (1934), during the last few months, studied the main tissues of 63 rats suffering from rickets. There was hyperplasia of the lymph nodes in nine animals. According

to Hess this is a frequently occurring change in rickets. One rat had a localized chronic fibrous myocarditis. The testes examined showed active spermatogenesis. However, four testes (including one control) were immature and the tubules small, with no spermatogenesis. The ovaries examined contained normal follicles, corpora lutea and follicular cysts illustrating maturation and ovulation. There was no perifollicular hyperemia, atresia, or pseudo-atrophy, as reported by Pallot and Mouriquand⁸⁸ (1933). We did not observe parathyroid hypertrophy, as observed by Doyle⁸⁹ (1925) in rachitic chickens.

Vitamin D deficiency has been related in the field of dermatology to acne vulgaris by Doktor-sky and Platt⁹⁰ (1934), and onychia (with B₂) by White⁹¹ (1934). These studies will require much more clinical evidence correlated with experimental data.

The story of rickets, osteomalacia and tetany is not complete. With the knowledge of many factors involved the etiology, to a certain extent, is explained, yet much is left unanswered.

VITAMIN E DEFICIENCY

The discovery of the antisterility vitamin was made by Evans and Bishop⁹² (1922), Sure⁹³ (1923), and Mattill and Stone⁹⁴ (1923). Evans and Bishop secured priority in publication, yet Sure's results were steadily accumulating from another angle before that time. Mattill and Stone (1923) made similar observations; therefore, these scientists are regarded as codiscoverers of vitamin E.

The female rat without vitamin E becomes pregnant, but fetal death occurs between the twelfth and twentieth days. In the yolk sac there is failure of development of entodermal villi and blood vessels, and in the embryo there is impairment of blood vessels and mesenchyme. Mattill, Carman and Clayton⁹⁵ (1924); Evans⁹⁶ (1925), Parkes, and Drummond⁹⁷ (1925), and Mason⁹⁸ (1926) found sterility in male rats. According to Mason, after extensive studies, deficiency of vitamin E results in

"an excessive liquefaction of the chromatin material, first in the spermatozoa and spermatids and later in less mature cells, followed by extensive fusion, especially of injured spermatids and spermatocytes into a typical type of giant cell of variable size."

When spermatogenic activity ceased the earliest structural changes were preceded by some

fundamental physiological disturbance of a distinctly irreversible nature. Abortion is frequent in sheep in parts of Scotland, but only one out of 36 animals aborted when treated with concentrate containing E, A and D vitamins (Dujerre,⁹⁹ 1933).

According to Vogt-Moller¹⁰⁰ (1933) 25 cases of infertility in women (20 cases of habitual abortion and 5 cases of sterility) were treated with wheat germ oil (commercial product called "fertilan") and wheat germ, with the result that living children were borne by 17 of the 20 cases of abortion.

As vitamin E is widespread in nature one would at first believe that this deficiency is of no import to man; yet in degerminated cereals vitamin E had been removed during the process of milling. We consume much of this type of cereal, and during the depression many individuals are practically existing on them. Is it not reasonable to assume that there are cases of unexplained sterility in the human due to vitamin E deficiency? More clinical studies need to be correlated with the experimental data now available.

VITAMIN G (B₂) DEFICIENCY

Perhaps no disease related to diet has caused more controversy than has pellagra. The spoiled maize theory has thoroughly saturated the literature, and the ideas of prominent zeists as Marzari,¹⁰¹ Balardini,¹⁰² Morelli¹⁰³ and Roussel¹⁰⁴ still persist.

Levene and Muhlfeld¹⁰⁵ (1923) found that the growth promoting and antineuritic principles in brewers' and bakers' yeasts were not necessarily the same. Smith and Hendrick¹⁰⁶ (1926), followed by Goldberger, Wheeler, Lillie and Rogers¹⁰⁷ (1926) demonstrated the dual nature of the vitamin. Goldberger¹⁰⁸ (1922) had previously produced pellagra-like lesions in six convicts by a diet deficient in protein or amino-acid. This prison farm experiment was criticized by many scientists, including MacNeal¹⁰⁹ (1922), Hindehede¹¹⁰ (1923), and Jobling and Peterson¹¹¹ (1917). The specificity of the lesions was greatly questioned. The most important criticism offered of this experiment was the fact that it was not accomplished in a non-pellagrous community, even if it be accepted that the convicts developed unquestionable pellagrous symptoms.

Experimental production of pellagra-like changes in the albino rat were studied by Goldberger and Lillie¹¹² (1926), Chick and Roscoe¹¹³ (1927), Hunt¹¹⁴ (1928), Salmon, Hays and Guerrant¹¹⁵ (1928), Sherman and Sandels¹¹⁶ (1929), Findlay¹¹⁷ (1928), Thatcher, Sure and Walker¹¹⁸ (1931) and Roscoe¹¹⁹ (1933). Goldberger and Lillie¹¹¹ (1926), in their report of pellagra-like symptoms in the albino rat included dermatitis and stomatitis which they related to pellagra. Findlay¹¹⁷ found growth failure; histologic characteristics of inanition with hypertrophy of the suprarenals; atrophy of the testes, and lesions of stomach and tongue. Thatcher, Sure and Walker¹¹⁸ did not consider the histologic changes in the skin absolutely comparable to those in human pellagra. We found no stomatitis, but did find gastric ulcers. Ophthalmia was present. Day, Langston and O'Brien¹²⁰ (1931) later discovered cataracts. No changes were found in the nervous system (Gunker and Kandel,¹²¹ 1933). Parson and Kelly¹²² (1933) observed pellagra-like conditions produced by egg white in rats on well supplemented rations. This appeared to involve an interrelation between a positively toxic cause and a relative absence of a protective factor, rather than a simple deficiency. Anemic rats fed a G deficient diet recover from the anemia (Stucky and Brand,¹²³ 1933), although anemia is one of the complications in late pellagra. Wheeler¹²⁴ (1931), in his overenthusiasm for his former chief, Goldberger, has exaggerated scientific facts to comply with the deficiency theory. No one will belittle the carefully planned work of Goldberger, yet it is possible to concentrate on one phase of a subject too long and become oblivious to all other angles.

The experimental black tongue syndrome in dogs was related to pellagra and lack of protein in the diet by Underhill and Mendel¹²⁵ (1928). Goldberger and Wheeler¹²⁶ (1928) later prevented and cured black tongue by autoclaved yeast. Rhoades and Miller¹²⁷ (1933) produced chronic black tongue in dogs, with an accompanying anemia, atrophic glossitis, diarrhea and loss of weight.

A disease similar to pellagra is reported in chicks on a G deficient diet (Kline, Keenan, Elvelym, Hart,¹²⁸ 1933).

Harris¹²⁹ (1913) reported pellagra in three monkeys (*Macacus rhesus*) which were inocu-

lated with the filtered juice of tissues from pellagrins. No one has been able to reproduce these experiments, yet all scientists who saw the monkeys agreed that the condition was pellagra. Stockman and Johnson¹³⁰ (1933) have reported a disease having the pathological characteristics of pellagra in monkeys, rabbits and guinea pigs, which occurred whenever the diet was rich enough in cereals. These authors discounted "the vitamin hypothesis" and regarded cereal *per se* as the cause.

Another viewpoint is represented in the report by Strauss and Castle¹³¹ (1933) that macrocytic anemia of pregnancy may be due to lack of what has been called the extrinsic factor essential for the specific reaction with the intrinsic factor of normal human gastric juice. For hematopoiesis in pernicious anemia the essential dietary component may now be defined as a substance closely related to vitamin B, if not B₂ itself. Glossitis, with anemia, has been related to the B complex (Miller and Rhoades,¹³² 1932).

Some of the prominent changes in pellagra are emaciation; rarefaction of the spongiosa and of cortical layers of the bone; cutaneous lesions, dependent on the stage of the disease, such as erythema and edema of the corium, hyperplasia of the rete and parakeratosis, hyperkeratosis and hyperpigmentation, and various degenerative changes in the central nervous system, depending upon the stage of the disease. In the gastrointestinal tract there is congestion and inflammation of the tongue, imperfect repair of the membrana propria in the pharynx, tongue, and esophagus, and hyperemia of the intestines with inflammation of the large intestine. Numerous cellular changes are noted in the brain and cord, consisting of chromatolysis of nerve cells, satellitosis, astrocytosis, and the presence of ameboid glial cells in the acute stages. In the chronic stages there are fatty and fibrinoid degenerations, regressive changes of the nerve cells, chronic nissl changes of the nerve cells, increase of glial fibers, permanent destruction of nerve fibers, and a marked increase of amyloid bodies. Early arteriosclerotic changes in the brain are important. All of these changes should be studied according to the stage of the disease. In the eye there is atrophy of the choroidal pigment and cataract (summarized by Thatcher,¹³³ 1931).

The changes present in rats and in dogs fed

on a diet lacking vitamin G are not correlated so readily with human pellagra as the pathological changes in scurvy, beri beri and rickets in certain animals. Many American scientists do not accept the vitamin G deficiency theory in its entirety, although it is admitted that yeast may be a preventive and a cure in many cases. A cure, however, does not give us usually the etiology of a disease. Roberts¹³⁴ (1920) has records of 25 pellagrins whose diets contained plenty of well-balanced food, yet who developed the disease. They did not take a well-balanced diet, in spite of the opportunity, and pellagrous symptoms resulted.

The discovery of the vitamin activity of the flavines by György, Kuhn and Wagner-Jauregg¹³⁵ (1933) is outstanding because the flavines appear to be a major component of the vitamin B₂ complex.

Vitamin G deficiency therefore does not explain all of the phases of pellagra. We have not excluded all of the arguments for the parasitic theory for the cause of pellagra. We have not proved that the photodynamic theory has not considerable merit. Jobling and Arnold¹³⁶ (1933) isolated organisms (*Aspergillus glaucusrepens* group) from the stools of pellagrins, which produced fluorescent substances. Extracts of these organisms were inoculated into a series of mice, and these mice when exposed to light developed prominent lesions.

It will be important to follow the research upon pellagra during the next decade.

CONCLUSION

It is possible that more vitamins will be discovered when we know more about their exact chemical constituents. Harris¹³⁷ (1932) has tabulated the claims of many authors concerning as many as 17 unclassified new factors, having usually a distribution similar to vitamin B. It is to the fundamental science of pathology that we must turn to identify these vitamins. Many reports from the literature are by scientists who have no knowledge of pathology, and have not even called to their aid skilled pathologists. Symptoms are not clearly differentiated from pathological changes, and the interpretation of morbid conditions certainly is not grasped. The biochemist must work with the pathologist and the pathologist must cooperate with the physiolo-

gist and anatomist, and this cooperation must continue down the gamut of the fundamental sciences.

We are dealing evidently here with some of the building-stones of the human organism. We can say truthfully with Aeschylus, "And here for men is remedy for ills a many."

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A CLINICAL STUDY OF PYRIDIUM IN URETHRITIS

MAURICE B. WOLFF, M.D.

CHICAGO

Laboratory studies of the gonococcus indicate that gonorrhea should be amenable to treatment with most any sort of antiseptic. The causative organism when compared in the laboratory with other types of pathogenic bacteria is found to be delicate. It is quite sensitive to both temperature changes and desiccation; and it is grown with difficulty even on special culture media. The optimum temperature for its growth is 37 C. But it is so sensitive that below 30 and over 42 it will not grow at all. Under only slight variations from the optimum temperature, its colonies undergo autolysis and die rapidly after 6 to 8 days. The organisms are likewise nonresistant to chemicals; and on the Petri dish or in the test tube, many antiseptics even in weak dilution will kill the gonococcus.

In the body, however, the gonococcus has a tendency to penetrate quickly to parts not easily accessible to antiseptics. The gonococcus is doubtless no more resistant in the body than in the laboratory; and many antiseptics which kill it on the Petri dish or in the test tube will doubtless kill it in the body just as quickly, provided they come in contact with it. Clinical experience has established the fact, however, that killing the organism in the laboratory and eradicating it from the body are two entirely different matters.

If the gonococcus did not penetrate into the urethral mucosa and urethral glands, but remained confined to the surface, then killing it in the body would be almost as simple as killing it in the laboratory. As a matter of fact, if quick action is taken after the start of the infection in treating the surface of the urethral mucosa with an antiseptic, before the organisms have had time to penetrate, instant annihilation of the invaders may sometimes be accomplished. To abort the disease in this manner, however, no time dare be lost, as sometimes within even less than 24 hours in a virulent infection the gonococci have already started to penetrate the deeper structures. After this has happened, there is no further chance of aborting the disease.

Most antiseptics, supposedly, produce their deleterious effects upon the gonococcus by coagulating its albumin. In mild form, they may be used in the urethra without much damage to the mucosal cells; but, if used in stronger concentrations, they devitalize or even kill the surface epithelium, causing shreds of tissue to slough off, and opening more area to the penetration of the infection. Sometimes, when the deeper tissues are damaged, strictures are caused, due to the formation of scar tissue with subsequent contraction. Such antiseptics lose part of their effectiveness through combining with tissue albumin; and, by building up a wall of devitalized tissue ahead of them, limit their own penetration into the tissues. The penetration of such antiseptics is practically nil. Because of such circumstances, there has long been a need for an antiseptic capable of penetrating the deeper parts of the urethral mucosa without damage to the tissue cells.

In recent years, a new class of antiseptics has been developed. These are the dye antiseptics. They produce their deleterious effect upon the gonococcus by an intense staining which interferes with the vital cell processes of the organism. These antiseptics do not coagulate albumin. It is true that, just as with the antiseptics which act by coagulating albumin, the antiseptic dyes produce the same affect upon the tissue cells as upon the gonococcus or other pathogenic bacteria. However, there is this difference, and it is an important one—coagulating the albumin of a tissue cell is just as damaging to it as it is to the bacteria; whereas staining, while devitaliz-

ing to the bacteria, may merely have a stimulating effect upon the tissue cells. This difference is likely due to the fact that the antiseptic dyes, like the dyes in general, have a greater affinity for vegetable matter than for animal tissue; and, consequently, stain the vegetable matter of the gonococcus and other bacteria with greater intensity than the animal tissue of the mucosal cells.

One of these antiseptic dyes was selected for trial in the treatment of a series of gonorrhea cases in the male. The dye selected, pyridium, is chemically phenylazo-alpha-alpha-diamino-pyridine hydrochloride. When it is given internally, it appears in the urine in from 45 to 60 minutes, staining it a reddish orange. This dye chemical is very low in toxicity and is practically always well tolerated, unless in rare cases where there is some impairment of kidney function. The preparations of the chemical used in this investigation, were the 0.1 gram sugar-coated tablets for oral administration; and the 1 per cent solution, and its dilutions, used locally.

The series treated consisted of 125 cases of acute anterior urethritis. The dye treatment was used in 77 of them, while 48 control cases were treated by other methods. In order to get as definite a check up as possible as to the value of the newer dye treatment over the older treatments, a close routine was followed in the diagnostic and treatment procedures. At the first visit, the history was obtained. If not the first attack, the number of previous attacks was recorded, together with the date when the last previous attack was considered cured. The general physical condition, home and working conditions were inquired into and recorded, as these things naturally frequently make a difference in how much and what sort of personal treatment the patient can take. The symptoms and the amount and character of the discharge were noted; and the gonorrhea classified into acute or chronic, simple or complicated, anterior or posterior. The actual diagnosis was, of course, always based upon the demonstration of the gonococci in the urethral smears.

At every subsequent office visit during the treatment, progress notes were made—the symptoms again noted, the two-glass test made, and smears examined—not only for gonococci, but

also to observe the character of the discharge in regard to pus, debris, epithelia, etc.

Usually in about 45 to 60 minutes after the internal administration of the first dose of pyridium, the urine begins to take on a reddish orange color, gradually acquiring a deeper and deeper color after additional doses. Inasmuch as the therapeutic effect of pyridium depends upon intense staining, enough should be given to maintain a deeply colored urine in order that the urinary canal should be heavily and constantly stained. The intensity with which the urine is colored is a very good check upon oral administration. During the acute stage, when many of the cases evidence discomforting symptoms, such as urgency, frequency, burning or irritation, two 0.1 gram tablets of pyridium were given orally, t.i.d. It seemed to be practical, after the symptoms were reduced and the patient made comfortable, which was usually in not more than two or three days, to reduce the dosage to one 0.1 gram tablet, t.i.d.—if this was enough to always maintain a deeply colored urine. This dosage then was usually carried along until treatment was completed. In some cases, however, it was found necessary to increase the dosage again to two 0.1 gram tablets, t.i.d. in order to maintain the desired intense staining quality of the urine. A few cases required three tablets, t.i.d.

In a very few of the 77 cases, pyridium was not freely tolerated, due apparently to an idiosyncrasy of the patient; though no cases were found in the entire series who could not tolerate three 0.1 gram tablets daily, particularly if given after meals. In the cases in which a heavier dosage—two or three 0.1 gram tablets, t.i.d.—was tried than could be tolerated, the symptoms were usually slight headache, nausea, and in some cases, slight intestinal colic. The symptoms of intolerance were never of any great degree of severity, and were always promptly alleviated upon reducing the dosage.

In 50 of the 77 cases treated with pyridium orally, the chemical was also used locally. The 1 per cent solution was diluted to 1:4000 to 1:1000 for office irrigations; and to 1:400 to 1:200 for hand syringe injections at home, always starting with the weaker dilutions. In some cases the office irrigations were given daily, and later cut down to two or three weekly. The hand

syringe injections varied from 3 or 4 daily to 2 daily in the later stages. In these 50 cases, treated with pyridium both internally and locally, only four suffered complications. One case developed acute epididymitis due to a trauma from the carelessness of the patient. Three cases went posterior, due to relaxation of the cutoff muscle. At least two of these were due to misuse of hand injections. The other 46 cases progressed uneventfully to recovery—recoveries being verified by the usual methods, such as provocative smears, urine examinations, prostatic massage, blood test and endoscopy in some cases. The average time of treatment in this group was unusually short, being from 2 to 5 weeks.

In 27 other cases of the series, pyridium was given orally; but locally, instead of pyridium solution, pot. permanganate, dilutions of the silver salts, and other antiseptics were used in office irrigations and by hand syringe injection. In this smaller series, there were more complications: two cases developed acute epididymitis; while four went posterior, some of the latter cases being due to misuse of home injections. The other 21 cases progressed to recovery satisfactorily; but took somewhat longer than the average in the group treated both orally and locally with pyridium, the average time of recovery being 6 to 8 weeks.

Control Cases. The other 48 cases of acute anterior urethritis were treated by other methods, no pyridium being used either internally or locally. Instead of pyridium, sandalwood oil, balsam copaiba, hexamethylenamine, etc., were given internally; while locally for office irrigations and hand syringe injections, pot. permanganate, silver proteins, and other antiseptics were used. In this group there were many more complications—three cases developed acute epididymitis, six cases went posterior, and seven became chronic—classified as such after 3 months' treatment. The other 32 cases progressed to recovery more slowly than either of the other two groups, averaging 8 to 12 weeks.

Conclusions. This investigation has been concerned with acute anterior urethritis only. Most cases come under medical care when in this first stage; and unquestionably it is here that intelligent treatment is of greatest importance. If acute gonorrhea can be successfully treated, there will be fewer chronic cases, complications, and

sequellae to worry about. It seems important that in the group of cases in this series treated with pyridium there was an unmistakably lowered incidence of complications.

In a large number of these cases in which pyridium was given orally, a rapid reduction of the discomforting symptoms was markedly noticeable, giving the patient quick and gratifying relief. Acute fulminating type cases with profuse discharge rapidly came under control with the discharge reduced so that it was not evident, unless squeezed out of the meatus. Patients in general, and particularly those with experience with other treatment, warmly appreciated the great relief and radically lessened discharge.

Another important consideration was the lowering of the average time required for recovery in the pyridium treated cases:

Pyridium—internally and locally.....2 to 5 weeks
Pyridium—internally only6 to 8 weeks
Control Cases—no pyridium.....8 to 12 weeks

A drug to be efficient in the treatment of gonorrhea should have the following properties:

1. Antiseptic
2. Astringent
3. Penetration
4. Stimulation

All of the drugs used for many years have one or more of these properties—from a clinical standpoint. The pyridium treated cases here reported needed no so-called “after treatment” to get rid of shreds, desquamation and debris, therefore it may be clinically assumed that it fulfills all of the four requisites specified above; and is, therefore, the best single drug treatment for gonorrhea, if used intelligently, and in cases that show plainly specific indication for its use.

It is quite evident, judging from the clinical effects obtained in this series of cases, that pyridium is a valuable therapeutic agent.

185 N. Wabash Ave.

THE CLINICAL VALUE OF ELECTROCARDIOGRAPHY

J. BAILEY CARTER, M. D.

CHICAGO

Electrocardiography has established a definite place for itself in clinical practice. A cardiovascular examination is incomplete without an

electrocardiogram. An electrocardiograph is as essential to the study of heart disease as is the x-ray in the study of other diseases of the chest. It reveals a source of information regarding the integrity of the heart which is frequently inaccessible to any other method of examination. In a broad sense, electrocardiography is concerned with two and only two cardiac functions, i. e., impulse production and impulse transmission. It is only when these functions are disturbed that the electrocardiogram is of service in the study of heart disease.

Electrocardiography is especially valuable in the study of the cardiac irregularities. Sinus arrhythmia, a common and benign irregularity, if complicated by extrasystoles, may be mistaken clinically for auricular fibrillation.

The importance of extrasystoles varies. The majority are benign. Some represent simply a toxic or functional disturbance. Others may indicate organic myocardial changes responsible for definite symptoms of heart disease. Associated electrocardiographic evidence may be helpful in reaching a clinical decision. The significance of extrasystoles also depends upon the location of the abnormal focus giving rise to the ectopic beats. Likewise, extrasystoles from multiple foci are of more serious prognosis than are those arising from a single focus. Finally, extrasystoles from multiple foci in both ventricles are indicative of more widespread myocardial reaction than if from only one ventricle. Multiple ventricular extrasystoles frequently initiate attacks of ventricular tachycardia. They may be forerunners of ventricular fibrillation and indicate a bad prognosis. The exact localization of these ectopic beats is impossible without the aid of graphic methods. Extrasystoles, so different from auricular fibrillation in significance, at times, may be differentiated clinically with difficulty.

Paroxysmal ventricular tachycardia is of more significance than is the auricular or nodal form since it is more commonly a precursor of ventricular fibrillation. The auricular form of paroxysmal tachycardia is usually benign. Differentiation of auricular, nodal, and ventricular forms of paroxysmal tachycardia is made with certainty only by means of the electrocardiogram.

An auricular flutter, at times, may be clinically differentiated from a paroxysmal tachycardia with difficulty. An auricular flutter with

a 2:1 ventricular response may be mistaken clinically for a simple sinus tachycardia. Likewise, without the aid of an electrocardiogram, an auricular flutter with a 4:1 block may be missed entirely. As a rule an auricular flutter with a varying degree of auriculoventricular block can be differentiated from auricular fibrillation only by means of graphic methods.

Auricular fibrillation, in the vast majority of cases, is readily diagnosed clinically. It is frequently difficult to recognize the arrhythmia in the presence of a very slow or very rapid rate. Without the aid of an electrocardiogram, such an auricular fibrillation may remain unrecognized; its recognition may alter the prognosis and therapy markedly.

Electrocardiography also enables the clinician to detect disturbances in stimulus conduction. Clinical recognition of the milder forms of heart block is difficult, often impossible, without graphic records. This is especially true when the partial block is of the type that consists of prolongation of the P-R interval. Nevertheless, this is one of the frequent early manifestations of rheumatic heart disease and occasionally the only means of diagnosing myocardial involvement in a case of rheumatic fever, or, less frequently, in other acute infections. At times, complete auriculoventricular block, partial 2:1 block, and sinus bradycardia can be differentiated only by graphic methods. More significant still is the differentiation of auricular fibrillation and partial auriculoventricular block with dropped beats, since the proper treatment of the two conditions is radically different. Occasionally an unsuspected bundle branch block is revealed by electrocardiography. The importance of such a revelation is readily appreciated.

Graphic evidence of myocardial involvement may be obtained before the diagnosis from the clinical signs and symptoms is possible. Graphic evidence alone is frequently significant of myocardial damage in recent coronary occlusion, in overdigitalization, and in bundle branch block. When, however, the changes are slight or occur in a record from an elderly patient, it is often impossible to make a definite diagnosis. Hence, usually, such evidence should be correlated with the clinical observations. Electrocardiography, as a rule, yields no information regarding the etiology of the myocardial damage. There is nothing in the graphic record to indicate whether

the involvement is organic, toxic, or the result of ischemia. There is nothing to indicate whether it is acute or chronic. The peculiar changes which result from overdigitalization or from a recent coronary occlusion are practically the only exceptions. The degree of graphic abnormality does not parallel the amount of myocardial damage. Extensive involvement of a silent area of the myocardium may result in little or no graphic change. A localized lesion involving the conduction system gives rise to extensive alterations in the electrocardiogram.

The amplitude of the ventricular complex is not a dependable index of the force of cardiac systole. The efficiency of the heart cannot be determined by graphic methods. Complexes of high amplitude frequently, but not always, indicate a healthy myocardium "Low voltage" usually, but not always, indicates myocardial failure.

Probably the most important indication for employing graphic methods is in the study of substernal, precordial, or upper abdominal pain of sudden onset. Here the occurrence of the striking and distinctive changes resulting from a recent coronary occlusion is of great assistance in differentiating this condition, especially atypical attacks thereof, from acute abdominal disease; thereby avoiding the serious results of operative intervention.

The contour of the curves of the normal electrocardiogram is constant for the individual over long periods of time. A recent coronary occlusion produces a series of graphic alterations which show definite changes from day to day. Serial electrocardiograms taken at frequent intervals reveal changes indicative of early coronary occlusion in almost 100% of patients. By following the rapidity of these changes some idea of the rate of recovery or progress can be reached. More conclusive evidence regarding the myocardial lesion may be obtained from such a series than from a single record. Serial electrocardiograms should be taken routinely in all cases of suspected coronary occlusion. At times coronary occlusion may lead to non-specific alterations of the electrocardiogram, viz., "low voltage," bundle branch block, extrasystoles, paroxysmal tachycardia or fibrillation. The sudden appearance of such changes in a patient clinically suspected of coronary occlusion should be taken seriously. Occasionally coronary sclerosis may give rise to graphic changes

indicative of coronary occlusion. Rarely, clear cut cases of the condition are seen without the occurrence of any noticeable alterations in the graphic record. While the definite and distinctive changes of coronary occlusion are to be taken seriously, it is, nevertheless, poor policy to ascribe to coronary occlusion an electrocardiogram showing minor alterations.

The electrocardiogram aids in the treatment by accurately determining the arrhythmia present. Rational therapy is thereby made possible. It is also of value in detecting the early toxic effects of digitalis and other cardiac drugs. It is the only means of detecting the early signs of heart block due to overdigitalization. Digitalis may produce all grades of heart block. It often produces fairly characteristic T-wave alterations. Digitalis may cause sinus arrest, extrasystoles, pulsus bigeminus, groups of ectopic beats, paroxysmal tachycardia and fibrillation. Knowledge of the clinical picture and therapy aids in the interpretation of the graph because digitalis may produce any type of record. The "digitalis T-wave" may occasionally occur in other conditions. At times, in the treatment of auricular fibrillation with digitalis the establishment of the normal mechanism may be overlooked, due to the fact that digitalis has induced so many extrasystoles that the predominant sinus rhythm cannot be distinguished from auricular fibrillation which is considered to still be present. The inadvisability of continuing digitalis medication is obvious. At times an electrocardiogram may aid in the management of a cardiac neurosis by helping to convince the patient that the heart is functionally and organically sound. As indicated above, it is an important aid in following the progress of a patient who has had a recent coronary occlusion.

While the electrocardiogram is of great clinical value it cannot replace the customary methods of history taking, percussion, auscultation, and roentgenology in diagnosis, prognosis, and therapy. It should be used as an adjunct to these clinical methods. There is a definite tendency to depend unduly upon graphic methods; a tendency to "read" too much into the interpretation of an electrocardiogram.

It is well to remember that a perfectly normal electrocardiogram may be obtained in the presence of serious heart disease whereas extensive

graphic alterations may be recorded without extensive myocardial changes being present.

SUMMARY

The type of patient who should receive the benefits of electrocardiographic study is the one:

1. With sudden onset of substernal, precordial, or upper abdominal pain.
2. With an irregular or intermittent pulse.
3. With coronary occlusion. The clinician can follow the progress of the patient better with a series of electrocardiograms than in any other way.
4. With a pulse persistently under 50 or over 100 per minute.
5. Undergoing digitalis medication. Also useful with other cardiac drugs.
6. Past 50 years of age with symptoms referable to the heart.
7. Who is a prospective mother, the integrity of whose heart has been questioned.
8. Contemplating major surgery, in whom the integrity of the heart is questionable.
9. In whom a full and complete appraisal of the heart is necessary. It is of great assistance in rating certain insurance risks.
10. With a cardiac neurosis, to distinguish functional from organic heart disease and to convince the patient that his heart is normal.

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PEPTIC ULCER IN CHILDHOOD REPORT OF A CASE

JAMES B. GILLESPIE, M. D., and
CESARE GIANTURCO, M. D.

URBANA, ILLINOIS

Ulcers, both single and multiple, may occur in the stomachs and duodenum of children of all ages. Sturtevant and Shapiro¹ found five cases of gastric ulcer in children in 7,219 necropsies. From 1906 to 1925 in 8,360 peptic ulcers

at the Mayo Clinic, Proctor² discovered only three in children. Two were duodenal ulcers, and one was gastric. He analyzed the literature and accepted only nineteen cases in children. Sixteen were in girls, and three were in boys; three were duodenal, and sixteen gastric. Schmidt³ found seventeen peptic ulcers in 2,715 postmortem examinations on children in the second year of life or older. Berglund,⁴ in an analysis of the records of 1,323 necropsies done on children up to 13 years of age in the hospitals of Stockholm, found fourteen duodenal ulcers, four gastric ulcers, and one combined duodenal and gastric ulcer. Seventy per cent. of these children were in the first year of life. Foshee⁵ summarized all the cases of gastric ulcer reported until the year

the signs and symptoms so characteristic of the condition in adults are rarely present, and hence the diagnosis is most often made at necropsy or at operation. After 10 years of age the peptic ulcer usually assumes the characteristics by which it is identified in the adult. Kennedy reports six cases of chronic duodenal ulcer, two of which were particularly interesting because the histories and roentgenologic appearances were characteristic. He believes roentgenological examination is the most dependable single procedure in diagnosis of ulcers in children.

Black, Bronstein, and Serby⁷ reported five cases in patients whose ages were between 5 and 13 years. In four of these diagnosis was confirmed by roentgenologic examination. The youngest child, aged 5, had had symptoms only one month. Proctor feels that as a criterion for chronic ulcers the symptoms must be of two months duration or longer, and there should be sufficient pathological change in the way of induration, fibrosis, and callus formation to constitute actual chronicity.

The etiology of peptic ulcer is a disputed point. This phase will not be discussed in this paper. It is probable that many of the factors playing a role in the etiology of ulcers in adults function in the same way in children.

Palmer⁸ performed a gastroenterostomy on a 6 months old infant with a duodenal ulcer. Miller and Gage⁹ obtained by gastroenterostomy relief for at least twenty-one years in a chronic duodenal ulcer in a 7-year-old girl. Holt and Howland¹⁰ advocate symptomatic treatment because of the uncertainty of diagnosis, and they consider surgery rarely justifiable.

We are reporting this case of duodenal ulcer because of several unusual features. The patient was one of the youngest we have found reported with ulcer of the chronic type. It is rare to obtain so typical an ulcer history as she gave, and roentgenologically there was characteristic deformity of the duodenal cap and associated cardiospasm. Cardiospasm was not mentioned in the reported cases, although Bode¹¹ has considered the possible relationship of ulcer to pylorospasm in infants.

The patient was a girl 4 years of age. She was first seen June 22, 1934, and was the oldest of the three children in the family. The father and mother were alive and well, and the family history was essentially nega-



Fig. I. X-ray taken June 27, 1934, showing the deformity of the duodenal cap.

1932, and, with his own, there were thirteen. The age range was from 3 months to 14 years, and the average age was 10 years.

Kennedy⁶ has classified the ulcers in children in rather distinct groups. First there is the ulcer of the newborn with its associated melena neonatorum. The lesion is acute and is a frequent cause of death in the infant who dies during the first few days after birth following the passage of bloody stools. Death may be due to hemorrhage or peritonitis; at times rapid healing of the ulcer occurs.

A second group of acute ulcers occurs in infants from a few weeks of age to the end of the first year. A third group occurs among children aged 1 to 9 years. These are chronic lesions, but

tive. The patient had had none of the contagious diseases of childhood. She had broncho pneumonia at 10 months of age.

She was a full term baby, delivered normally, and weighed 6 $\frac{3}{4}$ pounds. Breast feedings were used the first 10 months, cereal was added at 6 months, and vegetables at 10 months. As a baby she was very constipated. Since 4 months of age she had had periodic attacks of vomiting with no fever and apparently little pain. At 19 months of age she had an attack of severe vomiting and diarrhea without fever which lasted approximately one month. The attacks of vomiting came on suddenly without preceding illness and lasted a few days to several weeks. During the first year and one-half of life the vomiting occurred as a rule immediately after eating.

As she became older she complained of abdominal discomfort. The pain usually came at night and would awaken her from sleep, but at times before meals, or sometimes after eating. It was relieved many times by ingestion of soda, but never by emesis. The administration of milk was not tried, but other foods gave very little relief. The abdominal discomfort would occur with and without vomiting. Attacks of vomiting would last from several days to two or three weeks, and there was rarely an interval of more than a few days between attacks. At no time was there gross blood in the vomitus or stools. She had never been able to eat meat, crackers, or other rough dry foods. She had always been underweight, very nervous, and irritable. She had nocturnal enuresis.

The child on examination was undernourished and pale. Her weight was 27 $\frac{1}{2}$ pounds, normal weight being 38 pounds. Pulse was 128, and rectal temperature 100. There was bad dental caries present. The tonsils were medium size and infected. The cervical glands were a little enlarged. The heart and lungs were negative. There was no abdominal tenderness. The liver, spleen, and kidneys were not palpable. Urinalysis was negative. Hemoglobin was 60%, erythrocytes 3,610,000, leucocytes 8,800 of which 33.5% were lymphocytes, 6% large monocytes, and 55.5% neutrophils. The Guaiac test for blood in the stools was positive after the patient had been on a meat free diet one week. Gastric analysis showed 16% free hydrochloric acid and 29% total acidity. The Mantoux test with 1/10 mg. of old tuberculin was negative. The blood Wassermann was negative. Roentgenological examinations of the chest, colon, and gall bladder were negative. Fluoroscopic and x-ray studies of the stomach and duodenum on two different occasions showed typical ulcer deformity of the duodenal cap and cardiospasm. The patient was placed on a modified Sippy diet. One and one-half ounces of milk and cream were taken hourly; two and one-half grains of soda bicarbonate, and two and one-half grains of calcium carbonate were administered hourly on the half hour. There were added small doses of Elixir Luminal and atropin. Improvement was immediate. After one week she was placed on a bland diet with milk and cream between meals. She gained one pound in the first two and one-half weeks of treat-

ment, and, for the first time that the parents could remember, she made no complaint of abdominal discomfort. Roentgenologic studies were made of the stomach and duodenum again four weeks after diagnosis was made. The cardiospasm was less marked, but duodenal deformity persisted. Further observation will be necessary to determine whether medical treatment will be entirely effectual. Figure I shows the duodenal cap deformity noted at the time of the first examination.

On the whole a peptic ulcer in childhood is a rarely diagnosed condition. It is probable that the most important thing in diagnosis is to remember that chronic peptic ulcer does occur in childhood. Pain, vomiting, and obstinate constipation are the most frequent symptoms. Bleeding of some extent occurs in about forty per cent. of cases, and the stools may be positive for occult blood. A frail, slender, undernourished child with recurring gastric discomfort, vomiting and constipation should lead one to suspect peptic ulcer. Retardation of development is common. A complaint of abdominal pain particularly at night, or sometimes after meals, and relieved by emesis, the ingestion of milk or soda, should be indication for roentgenological examination of the stomach and duodenum by a competent roentgenologist. However, the history of peptic ulcer in childhood is rarely obvious, and roentgenological examination of the stomach and duodenum is justified in cases of obscure epigastric discomfort. Perforation is not uncommon. Children probably respond better than adults to medical treatment. It is of little value, however, in the calloused, penetrating, perforating, and obstructing ulcer. Such patients are suitable for surgery. Complications requiring surgical procedures are probably treated in the same manner as the condition would be treated in the adult patient. Removal of foci of infection should be a rational procedure.

As has been said, the x-ray is probably the most significant factor in diagnosis. The use of x-ray diagnosis in ulcers of infancy is a comparatively recent acquisition. Thiele,¹² in reviewing twenty-two cases in 1919, did not mention any case in which the diagnosis was established radiologically. The Roentgen diagnosis of ulcer in children does not differ in any way with the Roentgen diagnosis in adults, and, therefore, does not offer any more difficulties. The high percentage of positive cases reported is very encouraging and should induce a stricter collaboration

between the pediatrician and the roentgenologist.
Carle Hospital Clinic

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THE MODERN CONCEPT OF ACUTE INTESTINAL OBSTRUCTION

CARL G. ROBERTS, M. D.

CHICAGO

An enormous amount of research has adduced considerable information and resulted in marked modification of the previous concepts of intestinal obstruction, its pathogenesis, the chemical changes involved, and the toxic factors responsible for its rapidly fatal course. Haden and Orr, Whipple, Draper, McCallum, McIver, Dragstedt, Bayliss, Starling and numerous others, have done much to enrich the literature upon this subject and to formulate hypotheses upon which to base rational conclusions and treatment.

As a result of the work in this field, we have learned the vital importance of conserving the body fluids and replacing the loss of gastrointestinal juices with appropriate substitutes. It is now known that instead of toxicity being the factor of principal importance, dehydration, with the resulting changes in the blood chemistry, deserves equal if not greater primary consideration.

Under modern concepts the following can be accepted as physiological premises upon which to base conclusions:

(a) The normal amount of gastric, pancreatic, biliary and intestinal secretion in twenty-four hours, is more than the total quantity of blood and lymph in the body combined. In adults

the total quantity passing through the upper gastrointestinal tract for reabsorption in the lower bowel averages from five to seven liters daily. (McIver¹)

(b) Fluid enters the lumen of the gastrointestinal tract by way of the mucosa even though none is taken by mouth.

(c) Water and inorganic salts are not absorbed in the stomach, duodenum and jejunum, but must be carried by peristalsis to the lower ileum and colon for reabsorption.

(d) A continued loss of gastric juice results in the depletion of the blood chlorides, increase in the bicarbonate, the CO₂ combining power, the Ph and the N P N; in other words, changes incidental to an alkalosis.

Continued loss of the upper intestinal secretions, pancreatic juice and bile, with the resultant decrease in sodium, produces changes in the blood chemistry characteristic of acidosis, i. e., reduction of the CO₂ combining power, decrease in the Ph and increase in the N P N. The important etiologic factor involved in these changes seems to be the loss of sodium or chloride ions. The presence of these electrolytes in their usual proportion is essential to retention of ingested water and prevention of dehydration. (Gamble and McIver²)

Experimental research has demonstrated the presence of a toxin in acute obstruction which is unaffected by boiling and against which immunization is of no avail. Upon injection the action of this toxin is similar to that of histamine; producing a fall in blood pressure, acting as a secretagogue upon the saliva, succus entericus, gastric and pancreatic juices; and causing a fall in the blood chlorides with increase in the N P N and the urea nitrogen. (Dragstedt³)

It has been found that the normal intestine tolerates many times the toxic dose of this substance without harmful results. This may be due to the power of selective absorption possessed by the normal intestinal mucosa, acting as a protective mechanism. Obstruction causes distention, resulting in interference with intramural and mesenteric circulation; damaging the intestinal mucosa and causing it to lose its power of selective absorption; thus permitting these toxic substances to reach the blood stream.

If these premises and their correlated theories are true, we are warranted in believing

there are two principal factors in the causation of death from intestinal obstruction.

First: Changes in the blood chemistry, as a result of continued vomiting with a loss of the gastric and upper intestinal secretions, ending in alkalosis and dehydration.

Second: Distention causing circulatory and mucosal damage; thus permitting the absorption of a powerful toxin whose exact composition and nature is still undetermined, but one that is comparatively harmless to a normal intestinal mucosa.

Twisting and segmentation of the intestine does not usually occur in the earlier stages of obstruction, but after there is considerable distention or in the presence of peritonitis. This segmentation is not only due to the short mesenteric attachment of the ileum, but may also be a result of a distended intestine with intermittent peristaltic action endeavoring to accommodate itself to the limitations of the abdominal cavity. This results in the ladder-like formation of intestinal loops with fluid levels so graphically depicted by roentgenograms. In the earlier stages there are often gas filled loops with no perceptible segmentation or agglutination.

According to Wangenstein,⁴ the experimental laboratory has demonstrated that definite roentgenographic evidence of a single plate may be obtained three or four hours after the beginning of obstruction. Valuable information is given in the prone or supine position, both as to the degree of distention and location of the distended coils. The step-ladder arrangement occurs later and is not necessary to make a diagnosis.

It would be trite indeed to discuss the importance of relieving the cause of obstruction. Observation of this fundamental rule takes precedence over every other measure and the discussion of the adjunct procedures hereinafter mentioned is not to be construed as reflecting in any way upon this *sine qua non* of the treatment of these cases. There are many instances, however, where it is necessary to use temporary palliative measures; in conditions too critical to permit more extensive procedures, or as adjuncts to the major operation offering an additional margin of safety.

Based upon the preceding premises it would seem that the principal indications for treatment aside from relieving the actual obstruction are:

(a) Replacement of the lost fluids containing the essential electrolytes of inorganic salts and other organic substances.

(b) To decompress the bowel by relieving distention; thus restoring the circulation and preventing the loss of fluids by vomiting.

Inasmuch as there is loss of both gastric and upper intestinal secretions, there is also a varying depletion of blood chlorides even in the presence of a marked decrease in volume. Following the discovery that Ringer's solution and normal saline were of great value in replacing the chlorides and prolonging life, Hartmann perfected a formula which is said to be effective in either alkalosis or acidosis. (Elman.⁵) It contains sodium chloride 11.7 per cent., sodium lactate 5.6 per cent., calcium chloride 0.54 per cent., potassium chloride 0.74 per cent.; the sodium chloride being utilized by the tissues in alkalosis while in acidosis the lactate is converted into the needed bicarbonate. This solution has proven extremely valuable in the presence of dehydration with either alkalosis or acidosis.

Hartwell and Hoguet⁶ demonstrated the fact that dogs with high intestinal obstruction will live several weeks longer if given large quantities of salt solution. This experimental work was confirmed by Haden and Orr⁷ and as a result of their investigation the replacement of the chlorides by introducing normal saline or Ringer's solution, has been accepted as a routine measure in the treatment of ileus.

Decompression. In addition to relieving the obstruction whenever conditions permit, other measures have been advocated for decompression of the bowel and maintenance of the acid base balance. Enterostomy, accompanied by the par-enteral replacement of lost fluids and inorganic salts, has been used for years as an adjunct to the principal operation or as a preliminary palliative measure. Inasmuch as the obstructed intestine tends to rotate and twist on its longitudinal axis frequently producing segmentation, or when there is complete intestinal paralysis from generalizing peritonitis, enterostomy sometimes fails in its purpose.

High jejunostomy has been advocated by Heidenhain,⁸ Lee and Downs,⁹ and others, as preferable to simple low enterostomy on the basis that the most virulent toxic material is found in the jejunum and its drainage is more certain.

Haden and Orr¹⁰ found experimentally that it was necessary to use sodium chloride as an adjunct to jejunostomy to prevent untoward results.

Decompression by vacuum suction, such as is used with the Wangenstein apparatus, meets one of the principal indications for treatment by relieving the distention which is the cause of the circulatory and mucosal damage. It gives the patient all of the benefits of a jejunostomy without the disadvantages involved in establishing a fistulous opening with uncontrollable loss of upper intestinal juices and it involves no additional danger of surgical shock. The rapidity with which distention disappears is remarkable, especially if there is no segmentation of the ileum. It must be watched, however, to prevent the development of dehydration due to rapid depletion of the body fluids without replacement by efficient substitutes in adequate quantity. This danger is obviated by the use of glucose intravenously and the reintroduction of the aspirated intestinal fluids as proctoclysters.

If jejunostomy is more effective than enterostomy in the absence of segmentation, why isn't it possible to obtain equal or better results in selected cases by passing a Levine tube intranasally through the stomach into the duodenum without performing a jejunostomy? Wangenstein,⁴ and Vander Veer¹¹ report excellent results from transduodenal decompression in suitable cases of acute mechanical ileus. Wangenstein found that it was seldom necessary in adhesive obstruction to perform a second operation to release the constricting agent after performing enterostomy. This is also true of decompression with the nasal catheter. Vander Veer uses transduodenal decompression and siphonage in preference to jejunostomy. Other reports are rapidly appearing in the literature testifying to the favorable results in selected usage and to the many advantages of this method over routine enterostomy.

During the last two years, I have used transduodenal decompression with a nasal catheter combined with reintroduction of the aspirated gastrointestinal contents by proctoclysis, in some selected cases of acute ileus. The results have been promising and the mortality rate lower than in those cases treated without using these measures. In two or three instances, where the critical condition of the patient contraindicated

all surgical procedures, this method of treatment resulted in such rapid and marked improvement that further interference to hasten recovery was unnecessary. All of the cases were provisionally classified in the adhesive type, as this is the one affording the best indications for the use of decompression.

Reintroduction of Gastrointestinal Juices. The reintroduction by proctoclysis of the aspirated gastrointestinal juices supplies the minerals and their electrolytes which are so essential to tissue metabolism. This meets the second indication for treatment by preventing the change in the blood chemistry that follows the loss of the chlorides and other mineral salts. The factor of toxicity is a negligible one as was proven in the experiments of Elman, Dragstedt and others. Elman introduced a liter of intestinal contents containing trypsin, peptones, phenols, amines and other substances together with gas bacilli into the gastrointestinal tract without any harmful results. The selective absorptive ability of the normal intestinal mucosa neutralizes any possible harmful effects from toxins present in the aspirated fluids when they are introduced as proctoclysters.

There are many instances in which the physician is confronted by conditions too critical to permit surgical procedures without grave danger to the patient, or when surgery has been refused and he is forced to rely on palliative measures alone. There are now at his command, non-surgical methods which may lead to recovery in the adhesive type and which are of considerable value as adjuncts to the treatment of any type of acute ileus.

152 West Division Street.

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TREATMENT OF WHOOPING COUGH WITH PROPHYLACTIC PERTUSSIS VACCINE (SAUER)

MEYER M. MARBEL, M. D.
CHICAGO

Common observation dictates and lends itself to the idea that whooping cough infection will run a harsher course and with greater complications in some families than in others. This perhaps is due to a lowered resistance or a greater allergic reaction to the toxin of the given germ produced in the bronchial tree or quantitatively a greater degree of infection in a given family.

It is, therefore, of paramount importance to resort to a more effective means of treatment in the severer forms of cases of the whooping cough infection, not only for the purpose of prevention of unpleasant complications but at times even to safeguard against possible death arising from such complications. The following two cases are suggestive of severer forms and the variation in their treatment.

Case 1, Patient T. K., male, seven years old, contracted whooping cough ten days ago with very frequent spells of coughing, long whoop and violent vomiting. Hemorrhages from the nose, mouth and eyes followed each vomiting spell. Patient could not retain any food and would throw-up every time he would take a drink of water so that loss of weight, dehydration and exhaustion were quite prominent symptoms. The conjunctiva of both eyes was blood-shot, eye grounds showed petechial hemorrhages. Umbilical hernia was getting more pronounced, left ear drum showed a ragged perforation.

Patient's mother also gives a history that a younger brother of this patient died of whooping cough on the fourth week of the attack and his older sister during whooping cough developed a pneumonia that confined the patient to bed in hospital for six weeks.

Oral medication like syrup, tribromide of gold, 50% paregoric, luminal, codein, belladonna, etc., seemed of no avail. Therefore ether in olive oil, 1-drachm to the ounce, (4 cc to 30 cc) rectally, five inches high in a knee-chest position for half an hour was tried twice daily, then thrice daily and sometimes even four times

a day with very good results. Approximately from 70% to 80% of the coughing spells were under control. As this form of treatment necessitated treatment for several weeks, a more thorough agent was looked for. The prophylactic whooping cough vaccine (Sauer), Lilly & Co. was tried for curative purposes. Instead of using it once a week, it was administered daily, 1 cc into both arms, next day 1 cc into each leg; third day 1 cc into each arm; 4th day 1 cc into each leg.

At the end of the fourth day all symptoms have completely disappeared. Nose bleeding checked, coughing spells completely disappeared, eyes cleared, meals and water retained. Patient ate heartily, drank water plentifully, gained in weight. From this day on and for the following five weeks, the patient has not coughed a single time, has not even expectorated in the morning.

Case 2, J. K., four-year old boy, with a severe form of whooping cough. He was the only child of his mother. His four brothers died of whooping cough and his mother anticipated a like fate for this child. Straight ether injections 1 cc into arm once a day or every other day gave better results in the control of the coughing spells, one could term it ninety or 95% results and was more effective than ether and olive oil rectally, but had to be discontinued because a few days after each injection a clean punched-out like ulcer in the arm would result on the 3rd or 4th day and therefore ether and olive oil rectally had to be resorted to. This treatment was kept up for 7 or 8 weeks with fairly good results; patient made fairly good recovery at the end of eight weeks.

The prophylactic whooping cough vaccine (Sauer), Lilly & Co. has not been used in this case.

Conclusion: In the severer form of whooping cough cases prompt cessation of all symptoms and all coughing spells were observed when the prophylactic whooping cough vaccine (Sauer) Lilly & Co., was used for curative purposes. In another severe form of a similar case where ether injections intra-muscularly or ether in olive oil rectally were used, the symptoms were only abated from 60% to 90%. The treatment has to be kept up daily throughout the entire period of this self-limiting infection of whooping cough. In both cases oral medication has failed completely.

N. B.—14 cases of whooping cough with moderate severity of infection have given uniform results with the Pertussis Vaccine (Sauer) Lilly & Co. in a similar manner, as in case 1.

5 cases of whooping cough with as great severity, as described in above 2 cases, have yielded to the same treatment with as dramatic results, as in case No. 1, even though treatment was tried on 3d and 4th weeks since the first day of infection.

NON-DIPHThERITIC MEMBRANOUS INFECTIONS OF THE LOWER RESPIRATORY TRACT IN CHILDREN

WALTER M. WHITAKER, M. D., F. A. A. P.
andWALTER STEVENSON, M. D.
QUINCY, ILL.

During the past few months it has been our privilege to see several children exhibiting a clinical picture of an acute fulminating laryngo-tracheobronchitis. The clinical manifestations and course of this illness have been so striking, and any outline of treatment so limited in its benefits, plus a very high mortality rate, that we have felt this matter worthy of more general interest and consideration. No doubt, every member here is familiar with the type of case to be presented.

In presuming a suitable title for these cases, the term "membranous," was chosen, realizing that in many of these cases no true membrane exists on direct examination of the larynx, but usually a pseudomembrane or a sticky exudate is present in the larynx and trachea which acts to produce the same obstructive symptoms as a true membrane.

In order to successfully arrive at a proper and satisfactory outcome in the treatment of any illness of the respiratory tract with obstructive symptoms, the clinician must be able to arrive at a correct diagnosis in order that he may provide proper treatment for the given case. In most of the membranous conditions involving the lower respiratory passages in children, the physician usually has time to ascertain the nature of the illness and is consequently better able to carry out a satisfactory plan of treatment. There are three common outstanding conditions in children which give rise to symptoms of lower respiratory obstruction, namely diphtheritic infections, foreign bodies, and acute infectious laryngitis. It is not our purpose in this paper to discuss the first two conditions because we feel that they are fields with which all of us are more or less familiar. Acute infectious laryngitis with extension into the trachea and bronchi, has certain important aspects about it concerning which not much has been written, and it is

our purpose to present the clinical picture obtained in that condition.

For many years diphtheria was blamed for most all cases of laryngeal dyspnea of infectious origin. Gittens,¹ in 1926, stressed the importance of many such cases being of a non-diphtheritic nature and carrying a much higher mortality rate than the usual case of laryngeal diphtheria.

He also stressed the point that these cases were not new and rare but that many of the non-diphtheritic cases were being handled as diphtheria and classified as such in mortality and health statistics. Our main reason for calling attention to these cases at this time is because we feel that they occur often and are associated with a mortality rate sufficiently high to cause stimulation of interest among the profession, whereby means or ideas may be advanced to combat this grave condition.

That this clinical picture is not new is evidenced by reports in the literature relating to similar cases. McNab,² in 1915, reported one of these cases with similar clinical findings and a positive streptococcic culture from trachea. Lewis,³ in 1918, spoke of "Streptococcal Infections Simulating Diphtheria." Jackson,⁴ in 1921, reported a similar condition under the heading of, "Infective Tracheo-Bronchitis." Purcell,⁵ in 1921, wrote of, "Membranous Obstruction of the Bronchi, Clinically Diphtheria, Removal with Bronchoscope, Recovery." Gittens, in 1926, presented fourteen cases of non-diphtheritic membranous laryngitis and tracheobronchitis before the American Laryngological, Rhinological, and Otological Society. The same author⁶ reviewed the course and treatment in 24 cases seen since 1920 in a paper before the American Laryngological, Rhinological and Otological Society in 1932. Harry L. Baum,⁷ of Denver, has discussed 24 similar cases under the heading of, "Acute Laryngotracheobronchitis." He felt that the obstruction was usually subglottic and due to inflammatory swelling and not to membrane, although he remarks about the presence of a pseudomembrane in some cases and sticky secretions of glue-like consistency being present in all cases. It is this secretion or exudate, plus accompanying inflammatory swelling in the larynx and trachea, which we consider as a potential membrane. The latest article to appear

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on the subject is one by Lyman Richards⁸ of Boston under the heading of "Fulminating Laryngotracheobronchitis," in which his experiences in 11 cases at the Children's Hospital in Boston during the past few years are given. We must conclude that the literature on this subject is becoming more voluminous as these cases are recognized as a definite clinical entity apart from diphtheria.

The Clinical Picture and Discussion. The condition which we wish to describe to you can be defined as an acute infection of the respiratory tract, characterized by a rather intense febrile reaction, associated with a marked inflammatory change in the mucous membrane and walls of the trachea, bronchi, and bronchioles with the presence of a gummy glue-like exudate which acts as an obstructive agent to the airway. This secretion may extend downward into the terminal bronchioles and thereby produce a bronchial pneumonia.

The onset of the disease in the cases which we have seen is rather typical and uniform, most frequently in children about the ages of two to four years who have been apparently in quite good health. There will occur a slight head cold which may at times go unnoticed and may exist a day or two before the child wakes up at night with the symptoms of a spasmodic croup. The symptoms of croup are the typical ones with which you are familiar, being essentially the usual inspiratory stridor associated with hoarseness and the customary barking cough. The physician, on being summoned, may think of the possibility of a foreign body, but the history of the child having been put to bed apparently well tends to rule out such a possibility. A laryngoscopic examination may, or may not, be made at the time but the usual course of events will be that the patient is treated as if it were a simple case of croup, but to the attending man's amazement, the case does not clear up under such classical treatment, and he then in turn seriously considers the possibility of a diphtheritic infection for which antitoxin is usually immediately administered until cultures can confirm or disprove the diagnosis. Usually by this time, however, the child has grown much more uncomfortable with an increasing amount of dyspnea associated with rather marked sub-sternal and suprasternal retraction. With such

an advance and unabatement in symptoms, the physician naturally feels anxious and at this time the child is usually admitted to a hospital. Here attempts are made, if they have not previously been done in the home, to get a direct view of the larynx. By so doing one can definitely be certain as to the presence or absence of membrane or foreign body and also can remove any obstructing secretions which may be present. In the condition which we are describing, the cases were subjected to laryngoscopic examinations by one of us. The arytenoids and false cords showed little reaction of an inflammatory nature, the primary pathology being in the sub-glottic space. Here in the upper airway, one may find the formation of crusts in the region of the larynx which intensify the obstructive symptoms. After the removal of these crusts, or after the insertion of a tracheotomy tube one may feel that no further obstructive difficulty will arise.

Dyspnea of a serious degree remains the paramount clinical symptom — dyspnea which was not relieved in our cases even after the tracheotomy tube was in place and kept open. Dyspnea in young children and infants is always of serious importance and must be relieved early if life is to be spared. It is very easy to procrastinate in these cases since the dyspnea is usually slowly progressive and blue cyanosis may not appear but rather pale cyanosis due to cardiac exhaustion. Waiting for a child to become cyanotic is too dangerous. Any child with obstructive breathing persisting through the day is in grave danger and must be carefully watched and in such circumstances that cannulation can be done at once, particularly if there is no abatement of symptoms associated with marked restlessness, weak pulse, pallor and poor fluid intake. It seems that these symptoms are more apt to develop in the real young child, possibly due to the greater chances for the membranous exudate to develop to the point of seriously embarrassing the air entry. Also there is usually poor development of the cough reflex in small children which tends to add to the likelihood of development of mechanical obstruction. When the full-blown clinical picture of a tracheobronchitis occurs one finds a rise in pulse rate to about 150 with a persistently high respiratory rate even though the upper air passages may be fairly clear. This point cannot be too strongly

emphasized as of diagnostic value for when one finds no abatement of symptoms and the child remains in a restless state, with a tendency to cyanosis even with a tracheotomy tube in place, then one can be firmly convinced that he is dealing with the malignant condition known as nondiphtheritic membranous tracheobronchitis. With a return or continuation of the obstructive symptoms the attending physician is apt to feel that the intubation or tracheotomy tube may itself be occluded. Such, however, is usually not the case although at times the tube may become occluded with portions of the gummy material from the trachea. The point we have to realize, then, when such symptoms persist is that we are dealing with a mechanical obstruction so low down in the airways that no available therapeutic procedures are likely to be of use. The only thing which can offer any possible relief of symptoms at this stage of the process is a bronchoscopy, at which time the mechanical obstruction consisting of thick, tenacious secretion is to be removed. If such procedure cannot conveniently be done, then there is no doubt but that steady asphyxiation will become progressively more evident, and in spite of everything the youngster dies a horrible death due to suffocation. In the cases typical of this condition the most characteristic finding has been the presence of a thick gummy-like secretion in the trachea which tends to form semi-solid plugs of brownish material. There is almost never a true membrane present in the larynx or trachea but the gummy-like secretions act to produce mechanical obstructive symptoms.

It must be said here that innumerable children develop hoarseness and a croupy cough with any respiratory infection but severe dyspnea does not develop, fortunately, in the majority of such cases and recovery is usually rapid. In the described condition, we must remember that we are dealing with a descending infection and not one that remains localized to the larynx proper.

Pathology. As regards the infecting organisms in these cases, it is generally felt that the main offender is the streptococcus. Numerous other organisms, particularly staphylococci or pneumococci, may be found in cultures of the exudate in the subglottic area. Cultures were always taken from the larynx at the time of

laryngoscopy and from the trachea at the time of tracheotomy. The main value of any bacteriological study in these cases is its aid in deciding between diphtheria and some form of non-diphtheritic infection. In our own cases the staphylococcus aureus and staphylococcus albus were the usual organisms. Dr. Sydney Farber⁹ maintains that these cases are always caused by hemolytic streptococci and such organisms will be found if deep cultures are made, the microscopic findings being typical of an uncomplicated descending streptococcus hemolyticus infection. Superficial cultures may be positive for other organisms, however. Diffuse cellular infiltration and destruction of the walls of the larynx and bronchi was noted. The mucosa was destroyed and covered by fibrin and purulent exudate. The findings in the lungs were confined to a peribronchial reaction and infiltration of the alveolar walls with the formation of a true bronchial pneumonia in several instances.

Treatment. It is the control of the formation of this secretion, plus means to facilitate removal of same from the airway which seems the paramount principle and object of treatment in these cases. Usually after tracheotomy, dyspnea is somewhat relieved, but then one becomes confronted with the task of removing these secretions, an almost endless and a ceaseless job, demanding untiring effort and constant vigil on the part of the attending physicians and nurses. Following the cannulation, extreme dryness of the air passages ensues which acts to further intensify the gummy character of the secretions. At this stage dyspnea begins to increase and pulse and fever to arise. Various means to aid in liquefying the secretions are used, such as adrenalin in five minim doses dropped directly into the tracheotomy tube or weak saline or bicarbonate solution. Lately, Richards has used a sodium perborate solution in the same way. In our cases, adrenalin was used and there does occur a definite increase of secretions with some greater ease in removing the plugs. One feels that he has the airway clear after removing a plug, the child breathing easier and color returning but not many minutes elapse until the nurse hurriedly calls you to repeat the procedure. In our own cases, in spite of such procedure, and day and night vigil, gradual suffocation ensued, since it seemed impossible to maintain a sufficiently clear airway long enough for the child

to regain any recuperative powers. It seems that this so-called "dry-stage," with high fever, rapid pulse, toxemia, and pallor plus the gummy secretions is the most important phase in the entire clinical course, a picture not seen in ordinary diphtheria. No doubt, the major cause of death in these cases results from an ensuing pneumonia secondary to a mechanical atelectasis. In two of our cases, however, positive blood cultures were obtained, so a terminal sepsis may be a factor in death.

To aid in the liquefaction of secretions nothing is probably of more value than high fluid intake, usually only obtainable by intravenous methods.

Valuable time may be lost in treating these patients by x-raying the patient's thymus, or waiting for cultural reports. The larynx should always be examined early and repeatedly if necessary, to determine the progression of pathology. Diphtheria antitoxin may be given before the cultural report is known. Even though no specific action therefrom is expected, a foreign protein reaction may be beneficial. Certainly all infants and young children with dyspnea lasting several hours and throughout the day should be hospitalized for observation. Many of the cases with no fulminating downward extension of the infectious process are relieved by the usual croup tent, steam inhalations and forced fluids. Children with progressive dyspnea, rapid pulse, and pallor progressing to a pale cyanosis with definite play of the extrinsic muscles of respiration should have a tracheotomy done at once. It is felt that tracheotomy is preferable to intubation in these cases because of the presence of an accompanying infection in the tracheobronchial tree as well as in the larynx and because intubation tubes frequently become displaced and require a trained physician at all times to insert them. An intubation tube which has to remain in the larynx for several days may produce damage leading to a later laryngeal stenosis. However, Baum⁷ has allowed the tube to remain in many cases for a period of three weeks without any after effects. A properly done tracheotomy will cause no stenosis later. The presence of the thick tenacious membrane in the non-diphtheritic cases requires frequent removal which would be almost impossible via the intubation tube. The tracheotomy tubes form a means of easy access

for bronchoscopic work, if required. Streptococcus serum has been advocated in these cases, as well as immune blood but no significant effects have been noted following the use of either procedure.

Prognosis and Mortality. The prognosis in these cases seem to be highly dependent upon the age of the child. Most of the serious cases seem to occur under three years. Those cases which are seen early and the true condition recognized, may possibly be saved by tracheotomy and means to keep the airway clear and the plugs removed. In our own cases even such measures were of no avail. This exceedingly poor outcome for recovery is in keeping with the opinion of Richards¹⁰ of Boston. In addressing the section on Pediatrics at the annual meeting of Massachusetts Medical Society in 1932, he spoke on the question, "Can Fulminating Tracheobronchitis Be Cured," and concluded that children presenting this clinical syndrome of a descending Streptococcus infection of the respiratory tract invariably died. He managed to keep one child alive for 57 days, the child then dying when apparently recovering satisfactorily. Autopsy revealed the respiratory infection as having subsided. Richards reported four cases recovering by intubation but admits that these cases were of a much milder degree and probably did not belong in the category of the acute fulminating membranous variety. Since the purpose of either an intubation tube or a tracheotomy is to relieve laryngeal obstruction it is easy to see how unsuccessful either procedure may be in cases with descending infection evident. Richards⁸ in a later report noted that all his cases treated by tracheotomy or tracheotomy with intubation tube died and concluded that in the present state of our therapeutic armamentarium that prognosis was almost hopeless for these cases. Gittens⁹ mortality figures are somewhat better. In 24 cases which he has seen since 1920, 15 of which required tracheotomy, there were 8 deaths giving a mortality rate of 53%. His mortality rate has remained high in spite of early recognition and treatment as previously outlined. In this same period of years, Gittens saw 17 cases of true laryngeal diphtheria, 16 of which required tracheotomy with a mortality rate of 37%. Johnson¹¹ reported 3 cases, all under 3 years,

all of whom recovered, with decannulation being possible within 12 days. Unfortunately, we were unable to substantiate such good results in our small series of cases.

CASE REPORTS

The following cases are reported as illustrating the more important points already referred to in the paper. Brevity is used as only the essentials can be mentioned in the time allowed.

Case 1. A boy, R. W., one year of age, was admitted to the Children's Division of St. Mary's Hospital on December 21, 1933 with the history of a croupy cough and some inspiratory stridor of three days' duration. The stridor did not persist in the daytime for the first two days of the illness but the day before admission, it had remained audible all day. Temperature reached only 99-100 degrees and general physical examination was negative except for slight redness of the pharynx. The child was immune to diphtheria. There was no improvement by the usual outlined treatment of steam inhalation, expectorants, and anti-spasmodics. A direct laryngoscopy was done which revealed no membrane, but definite subglottic edema with a fiery red appearance of the upper trachea. The cords were not involved. There was some rather grayish-yellow exudate present in the upper trachea. Cultures and smears taken were negative for diphtheria. Previous treatment was continued, and the next morning another laryngoscopic revealed more evidence of obstruction and the child was showing now, definite suprasternal and infrasternal retraction. Hospitalization was done and in view of the persistent stridor, narrowing airway and restlessness with pallor and increasing pulse rate, a tracheotomy was done about three hours after admission. The child was not exhausted by any means when the operation was done. Twenty thousand units of diphtheria antitoxin was given intramuscularly while on the operating table. Following tracheotomy the stridor disappeared but dyspnea remained with rapid pulse and a rise in temperature to 104 degrees rectally. We then realized we were dealing with a clinical picture with which neither of us was familiar. Very shortly thereafter, tenacious, sticky, gummy mucus began to occlude the cannula requiring constant vigil and suction to remove the plugs. Humidifiers were kept active in the room at all times. Intravenous glucose was given twice during twenty-four hours and subcutaneous glucose 3% in Hartmann's solution. Adrenalin 1: 1000 sol. min. 4 with normal saline min. 4 was frequently injected into the cannula with syrup of ferrous iodide by mouth. Frequent occlusions of the airway continued to occur inducing marked restlessness and increased pulse rate and pallor. On the third hospital day marked paleness had developed and the laboratory reported 4,070,000 RBC with 53% Hb. 16,000 WBC with 54% polys, 12 staff, 42 segmented, 42 lymphos. A transfusion of 125 c.c. citrated blood was given and a blood culture taken which subsequently showed a pure bacillus pyocyaneus growth. The predominating organism in the smears from the larynx were staphylococcus aureus.

Urine examination was negative except for one plus albumin. The evening of the third hospital day, the air entry to the right lung seemed diminished and an x-ray of the chest showed a possible atelectasis or pneumonia of the right upper lobe. At this time we realized it was almost futile to attempt to keep the upper trachea open, when plugging has occurred lower, down below the reach of our suction catheter. In an effort to remove such mechanical plugs, three bronchoscopic examinations were made via the tracheotomy wound and by suction several plugs were removed with temporary improvement. The tracheobronchial tree was lined with this gummy exudate as far as one could see, hanging in spicules from the mucosal walls. Subsequently, in spite of further removal of plugs the child became more pallid, breathing more difficult, (but with less use of the extrinsic muscles) and death ensued from apparent suffocation due to mechanical obstruction of bronchioles, after a fatal illness of 7 days. After spending some 50 or more continuous hours on this case and then losing it, we were highly respectful of this clinical entity.

This case is unusual from the types described by other writers in that a *Bacillus pyocyaneus* was cultured from the bloodstream. In the extensive reports by Gittins, Richards, and Baum, no mention is made of blood culture studies. It is probable that in many of these cases we are dealing with an overwhelming sepsis.

The virulence of *Bacillus pyocyaneus* in young children has been stressed by Epstein and Grossman.¹² It is well known that this organism is particularly prone to attack the skin and mucous membranes. In this case, one can only speculate as to the portal of entry, but we feel that the most likely place was about the tracheotomy wound but, unfortunately, no cultures were made from that area. None of the characteristic gangrenous lesions about the anorectal and genital regions were observed, but probably death ensued too early for their development. In view of this complication rarely occurring it would probably be wise to frequently apply 1% acetic acid to the region of the tracheotomy wound in conjunction with the other usual aseptic precautions.

Case 2. A female child, L. Y., aged four months, entered the Children's Division at St. Mary's Hospital on March 2, 1934. One week before admission the mother was awakened suddenly about midnight by the noisy, crowing, breathing of the child with retraction of the suprasternal notch and lower intercostal spaces. The stridor remained present, day and night and at about the same intensity for about a week. The diagnosis of thymic hypertrophy had been made elsewhere before we saw the child. The voice was not affected and cyanosis was not evident. There had been a relatively low temperature but at admission the temperature was 102 degrees rectally with a pulse of 160 and a respiratory rate of 40. Immediate laryngoscopy was done, revealing a subglottic edema and mucopurulent discharge from below the glottis. The RBC were 4,500,000 with 15,000 WBC. Blood calcium was 12.4 mgm per 100 c.c. serum.

Smears from the larynx were negative for KLB and staphylococcus albus was the predominating organ-

ism. In view of the obstructive symptoms becoming unrelieved, tracheotomy was done about ten hours after admission, under local anesthesia. Following the operation, the pulse remained at 160-170 and respiration rose to 60-70 with the temperature remaining about 102 degrees. We felt we might not be dealing with one of these fulminating cases until about the third postoperative day typical plugging began to occur, demanding suction to keep open the airways. Signs of bronchospasm developed over both bases. The temperature rose to 106 for two days and the child died a similar suffocative death to case 1. Blood culture taken before death revealed a positive growth for *staphylococcus albus*. Transfusions and intravenous glucose were also given in the case along with steam inhalations, and adrenalin via cannula and constant humidifiers in the room. Autopsy was not permitted.

Case 3. A boy about five years of age became suddenly ill with croup following a slight upper respiratory infection. The stridor persisted through the day. The child was brought to Blessing Hospital where it was seen in consultation by one of us. Direct laryngoscopic examination revealed subglottic swelling with a brownish tenacious material coming from the trachea. Tracheotomy was done one hour after admission and the child seemed satisfactory. A few hours later, obstructive symptoms developed, being relieved at times, by the therapy. The child was put in an oxygen tent. Death occurred 48 hours after admission to hospital.

Case 4. Boy, aged $3\frac{1}{2}$ years, entered Children's Division at St. Mary's Hospital on February 23, 1934 and was discharged on February 27, 1934. History of sudden onset of stridor, croupy cough persisting through the day, with fever of 104 degrees at onset. Child was immune to diphtheria. Examination was negative except for stridor and slight suprasternal retraction. Child was hospitalized and direct laryngoscopic examination revealed deeply injected cords, no supra or infra-glottic edema, but a moderate amount of purulent discharge coming from the glottis. Smears coming from larynx were negative for KLB and positive for streptococcus, pneumococcus and staphylococcus. This boy was given conservative treatment and closely watched, because we felt he might develop into the fulminating type but he recovered in three days and was sent home well.

This case was included because we feel it is the common type of catarrhal laryngitis, frequently observed, yet the symptoms at the start are similar to those which develop in the true fulminating, membranous cases. This is the type of case which gets well, while those developing descending symptoms are highly fatal. This case would also have recovered with intubation, had that procedure been necessary. Numerous other cases of non-diphtheritic laryngeal obstruction have been seen this past winter, all of which recovered but in many of whom we were fearful that the fulminating, membranous form might develop.

Case 5. A number of years ago a child $2\frac{1}{2}$ years of age came into the hospital with the history of having aspirated a kernel of corn which could not be located by ordinary bronchoscopy and a low tracheotomy was done because of impending suffocation. As soon as

the trachea was opened the kernel of corn was recovered without bronchoscopy. The progress of the case was uneventful until the following day when a condition typical of the disease described heretofore developed. The tracheal wound was reopened and with the utmost difficulty we were able to keep the tracheobronchial tree clear of viscid, tenacious, glue-like exudate. Forty-eight hours after entrance into the hospital the child died as a result of sepsis, cardiac exhaustion and almost complete obstruction of the lower respiratory tract. Attention is called to the case because of the fact that the disease was unquestionably secondary to the induction of a foreign body. A similar case in a slightly older child following the removal of a watermelon seed, has been observed with recovery.

SUMMARY

A group of highly fatal cases characterized by a descending infection of the lower respiratory tract, of non-diphtheritic origin is presented. Present therapy seems almost futile to save these children. A plea for the early recognition of this entity is made, so that those cases will not be considered diphtheritic in origin, and thereby, valuable time lost in instituting proper treatment, if in the present state of our knowledge, we can say that instituted treatment is of any avail in restoring health. The authors concur with Dr. Richards in believing that fulminating tracheobronchitis is almost invariably fatal. Direct laryngoscopic examination is invaluable in aiding in the differential diagnosis of this condition.

By early recognition of these conditions, with early relief of laryngeal obstruction, followed by mechanical removal of the exudate in the lower respiratory tract, it may be possible to save a percentage of these cases before pneumonia or plugging of the bronchi results or sepsis ensues. Possibly further bacteriological studies with development of a specific serum will aid in combating this dreadful disease.

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DISCUSSION

Dr. Walter Stevenson, Quincy: It has been my misfortune to see a number of these cases in some of which I am sure the true nature of the disease was not recognized. Interference with the airway in any individual calls for measures that will immediately relieve the distress—one may procrastinate a little in adults, but in infants and young children delay can spell disaster under circumstances so tragic that once experienced, the observer shudders to even think of repetition. I take it that we agree that the disease condition under discussion is not new. Its general recognition as such is, however, probably comparatively recent. I have the feeling that we all have seen many of these cases in the past and diagnosed them as diphtheria, even though negative laboratory findings may have been recorded. Laryngeal diphtheria has been the cause of serious laryngeal obstruction in the past so often that instinctively we think of that disease when first seeing a child with laryngeal stridor. In the past, antidiphtheritic treatment was instituted in all of these cases even without positive laboratory findings, and those that died still remained diagnosed as diphtheria. At the present time the effectiveness of toxoid and of diphtheria antitoxin should cause us to hesitate to make a diagnosis of diphtheria unless the case is proven.

Until a few years ago direct inspection of the larynx of an infant was practically unheard of and seldom done. With improved instruments there would seem to be no excuse for omission of this enlightening procedure. It can be done in the hospital room or in the home without danger and as simply as an ophthalmoscopic examination.

I have been impressed with the early appearance of the larynx in this condition in contrast to the ordinary acute catarrhal laryngitis in which there is a diffuse redness and congestion of the endolaryngeal tissues. These cases present a swelling of the tissues just beneath the vocal cord area without much evidence of diffuse inflammatory change. This, as you know, is the space inside the cricoid cartilage; the area is composed of loose soft tissues easily traumatized and quickly responding to infectious processes. It is in this location that the obstruction is usually found. Stridor produced by swelling here is usually inspiratory and expiratory and extremely exhausting. Bronchoscopic examination in the early stages shows nothing abnormal. As the disease process descends thickening of the tracheobronchial mucosa is noted with thick tenacious mucus lying upon the surface. Soon this secretion dries and becomes tenacious and almost like glue; a type of dehydration seems to follow with the accumulation of added tenacious membrane and finally the entire tree becomes occluded at varying levels causing migratory atelectasis, the final stage being bronchopneumonia or massive collapse with anoxemia.

How should these cases be treated? The question has

been raised as to whether any treatment is of avail. I believe that diphtheria antitoxin should be used early in every case regardless of objective findings; one, two or even more negative laboratory examinations do not rule against diphtheria. The use of antitoxin may do some good and certainly does no harm. The sick room should be warm and the air humidified. I question the efficacy of medicated steam and I doubt if one can evaporate enough water by an ordinary croup kettle to materially increase the humidity of an ordinary room. Certainly fluids should be pushed, intravenous glucose blood transfusions and hyperdermoclysis, etc., have a definite place in the general care of these little patients. The inclination and temptation to procrastinate before operative intervention is, of course, well known. It is much better to open the trachea too soon than too late. The question of choice between intubation and tracheotomy probably will depend on the individual case, but most likely upon the convictions of the individual laryngologist. Personally, I have no hesitancy in choice and always select tracheotomy. The operation should be done early, long before what is ordinarily considered blue cyanosis. The pale cyanotic appearance about the mouth with increased pulse rate is certainly definite indication for immediate operation and early tracheotomy is good judgment, a late one shows evidence of vacillation and timidity, resulting in poor technic and an exhausted heart. The after care of these cases presents the most serious features of the disease. I do not know of any other condition requiring almost constant attendance by the physician. Certainly these cases require such service. Crises of obstruction develop so suddenly and dramatically that one may scarcely leave the room. The tenacious exudate in these patients can be removed only by one thoroughly familiar with past emergencies. We have tried adrenalin instillations to soften the crusts, and we have thought at times that they were helpful. A recent personal communication from Dr. Lyman Richards of Boston, who has had a great deal of experience with this disease, suggested perborate of soda instillations and that he had used this chemical in a case which recently recovered. We did not find it useful. Catheter suction seems the only dependable procedure. Bronchoscopy should be held in reserve, because I am sure the trauma of instrumentation in an already engorged tracheobronchial tree is not conducive to relief of edema and swelling. Supportive general measures with meticulous care of the local complications as they develop may save some of these patients. My limited experience makes me very pessimistic about the curability of most of these cases, particularly those of fulminating type.

Dr. E. A. Wester, Mt. Sterling: Dr. Whitaker's paper seems to clear up some doubts about a few cases I had last fall. Last October I was called at three in the afternoon to see a child, aged three years, about ten miles out, who had been seen earlier by a doctor in that town, who was not then available.

The child awakened about midnight apparently with the croup. They gave it some type of croup remedy and got only poor results. They called this other doctor at ten o'clock in the morning, he got there at eleven.

He went over the chest, said there was nothing much in the chest, and left some tablets, presumably iodized lime.

About ten o'clock the child began to get more dyspnoic, and when I saw it at three it had a temperature of 100.4, rectal, pulse 130. The chest seemed to be just literally filled up with fluid.

The child was very cyanotic. While I was there the other doctor called up and said he was then available, so I told him to go ahead with the case, and I was through. He called me up the next morning and said the child's chest filled up more and it became more cyanotic and died about one o'clock that morning.

In February I was called out to see a child about two years old who gave about the same history of croup coming on in the afternoon. I saw it at nine o'clock at night. It was having epigastric and suprasternal retraction, very cyanotic, normal temperature but high pulse. The chest was full of bubbles and because of the experience with the iodized lime tablets given to the other child, I took a chance on giving it atropine. I fixed up some tablets in solution and had them give a teaspoonful representing 1/500 grain every three hours. The child stopped its breathing of that type the next day and seemed to be all right.

Two weeks later the same condition recurred I again gave it atropine and the child recovered in about a day and a half or two days. So far as I have been able to learn it had no other attacks. Both of these children had recently had diphtheria shots. The older child had had them about six months before and the other child about five months, and there was no history of exposure to diphtheria in either case. Diphtheria was my first thought, but on account of the shots I ruled that out. Both of the children were girls.

Dr. H. L. Ford, Champaign: I would like to compliment Dr. Whitaker on the very inclusive review. It certainly is very timely and it seems too bad more men could not have heard it.

My attention was first called to this in 1924, taking Dr. Jackson's course in Denver, when Dr. Baum reported four cases with three mortalities.

There are just a few points I should like to emphasize. There is the question of etiology. I recently have seen four cases. There have been five this winter in Champaign and Urbana all within three blocks. Two of these died. I had one of the two fatal cases, and two which recovered. I did a postmortem on the fatal case and the pathology showed an intense cellular infiltration with destruction of the tracheobronchial mucosa, a terminal bronchiolitis, secondary bronchopneumonia. At the time the post was done there was also a question of mediastinal emphysema, such as Baum suggested from a postmortem examination in a fatal case.

There had been a tracheotomy and three bronchoscopies performed with removal of many crusts.

Relative to the question of intubation or tracheotomy, the consensus seems to favor a tracheotomy in order that these secretions may be aspirated by bronchoscopies.

Of the eleven cases which Richards reports, four of those he questions as to the etiology, saying there was

no tendency toward the downward extension and that streptococci were not present.

In talking of the etiology in the four cases which I saw with Dr. Graham, of the department of Animal Pathology of the University of Illinois, he brought out an interesting observation that in chickens we have a tracheobronchitis that is now considered to be due to a virus, and he feels that in all probability we are considering a secondary phase only: that we really have a virus causing the definite clinical entity, non-diphtheritic.

In the treatment the question of moistening the airway is to me very important. In the two cases that I last had and which recovered, one a youngster six years old, where the mortality is of course low; but the other youngster, where the mortality is supposed to be high (three years old), showing a greater tendency toward the downward extension and hoarseness, subglottic infiltration, both were kept in croup tents with sheet over the top, the steam going in constantly all the time, and no attention was paid to the humidity. The order was that they be kept under steam constantly. They were given thirty ounces of fluids by mouth daily and five per cent. dextrose in normal salt intravenously for the first few days. They were both given scarlet fever convalescent whole blood also.

In speaking with Dr. Hoyne yesterday, of the fatal case, I mentioned that I endeavored to use the Mosher life saving tube in the home, feeling the patient was dying when I first saw her, and he felt that in many instances where we endeavored to insert this Mosher tube as a life saving device, we angled the tube too much. I was unsuccessful in my attempt at the home to insert the tube. We rushed her to a hospital and did a tracheotomy and the subsequent bronchoscopies with removal of many heavy crusts from the tracheobronchial tree.

I should like to merely emphasize the fact that the condition is a definite clinical entity, non-diphtheritic, and the importance of diagnosis by direct laryngoscopic examination with measures directed toward keeping the airway clear and forcing fluids.

Dr. Walter M. Whitaker, Quincy (closing): This condition certainly remains something new to us, something which is stretching every bit of intuition and energy we have to attempt to solve the problem.

Dr. Wester's experiences are wholly in keeping with the experiences of all of you. I want to emphasize again that in the past the majority of these cases were called laryngeal diphtheria, and they certainly are not.

I am interested to know of Dr. Ford's association with Dr. Graham, and as he brought out, Dr. Graham has had some recoveries in cases in which he put in an intubation tube after he had previously done a tracheotomy, maintaining that the intubation tube provided for less tendency to a drying of the secretions. However, if that is the only reason for it, it seems to me we could accomplish the same result if we have intense humidity, of one form or other, in the room. As Dr. Ford mentioned, certainly the tracheotomy is of great value in the mechanical procedures which may be necessary later on in the case.

RECENT ADVANCES IN PLASTIC SURGERY WITH SPECIAL REFERENCE TO VASCULARIZATION OF IMPLANTS

HAROLD M. GOLDEN, D. D. S., Ph. D., M. D.
CHICAGO

Plastic procedures today have taken their place as a most valuable part of surgical craftsmanship. The object is no longer confined to cosmetic and esthetic ends, but rather to the rectification of disgusting, unsightly disease disfigurements and malformations which shut out the unfortunate victims from social and economic life. Plastic surgery has become a specialty to which many distinguished surgeons are devoting their whole time, constantly improving methods and technics. In Europe, it has its own specialist literature. The appearance of Jacques Joseph's¹ masterful book on facial and other plastic procedures has marked the final stage in the evolution of plastic surgery to its position as a specialty.

Naturally, defects in the face and other exposed parts call for most cosmetic plastic procedures. This is especially the case today, owing to the vast number of facial injuries due to automobile accidents, the yearly number of which is becoming alarmingly high. Every general surgeon should to some extent be acquainted with ordinary plastic methods and aware of the present practices and future possibilities.

In this paper I propose to review succinctly some recent plastic advances and to emphasize the measures taken to insure a good nutrient blood supply to implants which are so largely used. It must be evident to all that proper vascularization is one of the prime essentials of plastic surgical procedures.

Skin Grafts and Skin Flaps in Plastic Work. The use of skin grafts and flaps in reparative work about the face and upper trunk has undergone considerable modification in recent years. Distinction should be made between the words graft and flap, which are often used indiscriminately by many writers. A skin flap is made up of the whole thickness of the skin together with a nutrient pedicle; a skin graft is free skin removed from its original site and implanted elsewhere; it may be taken from the individual upon whom the implant is made, or from another, and may or may not include all the skin tissues.

Padgett's² experiments have shown that blood matching has a good deal to do with the "taking" of a skin graft. Moreover, as he has shown, there are organismal differences between all individuals which determine the relations between host and donor in skin as well as in other grafting. The organismal differences in the same individual and in syngenetic transplants are obviously less than in heterotransplants. In Padgett's experimental 44 homotransplants of skin, 21 were free full-thickness grafts, and 23 were thin so-called Thiersch grafts. In only 4 cases, identical twins, did the grafts take and persist for 2 to 3 months. If the bloods are matched and the corpuscles of the donor are not agglutinated by the serum of the recipient, the graft lives for a longer time than when the opposite occurs. But even in an autograft the central part may, and usually does, become necrotic, while the peripheral part is becoming vascularized. As the closeness of relationship between donor and recipient decreases, less periphery lives and for a shorter time. In a homotransplant of skin (and this seems also to be true for other transplant material) the central part which becomes necrotic is much larger than in the case of an autograft, and complete destruction soon occurs. Autogenous skin grafts, therefore, appear to be the only practical ones to use in plastic surgery.

Davis and Traut,³ who investigated the subject in 1925, found that the blood supply to whole-thickness grafts is established by anastomosis of small capillaries, by the upward growth of capillaries inside the old vessels and by the invasion of capillaries from the host texture, the latter being the slowest but the most permanent means of vascularization. The earliest they were able to demonstrate circulation in whole-thickness grafts was 22 hours; but an adequate circulation, to insure survival of a graft, is not established until about the eighth day. The studies of Paterno⁴ about the same time showed that the establishment of circulation in skin grafts is partially dependent on the orientation of the blood vessels in the graft in relation to those of the surrounding structures.

It has been remarked above that the best part of the vascularization of the full-thickness graft comes from the host's underlying structures, hence there is, as Garlock⁵ points out, much probability of such a graft becoming

necrotic if placed over bone or tendon or other poorly vascularized surface. A pedicled skin flap should be used in such cases.

The success of an ordinary pedicled skin flap depends upon the maintenance of sufficient circulation through the base of the pedicle until collateral circulation is established. These flaps are admirably suited, as pointed out by Spaeth⁶ for ophthalmic defects, especially for one in which the tissues contiguous to the defect themselves contain contracting scars.

The tubed skin flap is a modification of the pedicled flap, which was developed by Gillies, of London, during the World War. It is a double-pedicled flap with the edges sutured together so as to leave no raw surface exposed.

Curt von Wedel⁷ remarks that whenever possible a pedicled skin flap should contain a major artery with an unimpaired venous return. Unless the flap contains such an artery it should not be more than two and one-half times as long as the pedicle is wide.

German, Finesilver and Davis⁸ have studied the establishment of circulation in tubed skin flaps. Their experiments indicated the establishment of an adequate blood supply from a single pedicle (of a double-pedicled skin flap) within 7 days. They noted that the number of blood vessels in the skin varies in different regions of the body, being greatest where the skin is most subject to external pressure. These authors think they are justified in stating that in a tubed flap the normal vessels of the human skin increase in size and number and that the main vascular channels are reorientated to correspond with the long axis of the flap. They found that the base pedicle of a tubed flap may be severed by the tenth or eleventh day, the pedicle being divided piecemeal, about one-third at a time. The longer the tubed flap is allowed to remain intact, within certain limits, the more stable the blood supply becomes; but the establishment of circulation occurs considerably earlier than was previously thought possible, and consequently it is safe to divide the pedicle sooner.

In using a tubed flap New and Havens⁹ prefer to wait three months before transferring it to its new position. This, they think, insures its blood supply and is a safeguard against infection as well. When a pedicled flap is taken from the forehead for use on the face, the angular artery

may be used as the main supply, or if the pedicle is in the temporal region, the superficial temporal artery may be employed.

Woolsey¹⁰ points out that split skin grafts, those being less than full thickness, are now being used more frequently than ever before, but remarks that only about 65% of such grafts "take" sufficiently. A free epidermic graft lives a parasitic life for the first 48 hours dependent upon absorption of plasma or lymph from the host. Capillary connections form with the host's local blood supply and by the fifth day a graft, if successful, will have a very firm attachment and a pinkish-white or pink color.

Havens¹¹ calls attention to the necessity at times of applying a skin graft to the undersurface of a pedicled flap in order to provide a lining for a cavity to be filled in by the flap. Such skin graft is usually taken from the arm and is a full-thickness graft. It usually "takes" and is applied as soon as the skin flap is elevated.

Russell¹² describes a new method of skin grafting. A cylinder, made of ordinary carpenter's sandpaper, is quickly scuffed across the forearm which is held adjacent to the defective spot desired to be covered with skin. The abrasive action of the sandpaper causes the fine fragments of skin cells (the outer surface skin which will grow rapidly as grafts) to be implanted on the defect. At the malpighian layer a burning sensation is produced as the cylinder is advanced.

Somewhat analogous to this is the implanting of active epithelium as described by Kohn¹³; he uses the edge epithelium of the wound or defect itself, which, histologically and biologically, is young active epithelium: it is undermined and spread over the defective surface. Neuhäuser¹⁴ states that he has employed this method since 1918.

Col. W. L. Keller, M. C., U. S. A.¹⁵, calls attention to the excellent results obtained from the "tunnel" skin autografts in the Walter Reed General Hospital. This is an adaptation of the Esser whole-thickness inlay. It is effected by tunnelling through a band of tissue, such as an eversion of the lip or a contracting fold, then drawing into this tunnel a whole-thickness graft and, after 5 or 6 days, cutting through from the external skin surface to the tunnel grafted skin. Keller says that this graft is successful because it is completely surrounded by living tissue, and, as any graft must subsist on lymph for

several days, the plasma circulation is more efficient and completely bathes the transplant within its tunnel, furnishing an ideal environment, as no better medium could possibly be obtained for the preservation of the grafted tissue. It seems probable also that the capillary circulation is more quickly established and the period of defective nutrition shortened.

PLASTICS OF THE FACE

A number of new methods or improvements over old methods of plastic repair of defects or blemishes in the facial region are to be noted in recent literature.

Materials. Carter¹⁶ has experimentally investigated the ultimate fate of bone when introduced for the purpose of correcting a facial deformity. He has been able to follow the course of a number of human cases and has noted that, if aseptic conditions are preserved and the transplant is contacted with living bone, it will establish osseous connection with this bone and continue to live and to grow, its growth being regulated by the functional demands of the part. Such transplanted bone is not absorbed; if infection should occur, part of the transplant becomes necrotic but sufficient is left, so that the necrotic area is ultimately filled with new bone by the action of the osteogenic cells remaining in the live part of the transplant. Autogenous transplants give permanent results.

The central part of a bone transplant may die, as has already been stated in regard to skin grafts, and in roentgenograms this looks like a medullary line.

Carter¹⁶, states that the ultimate fate of a bone transplant is dependent on the reestablishment of its capillary circulation through the Haversian canals and canaliculi to the lacunae where the osteoblasts lie. This process is not complete until the bone has been penetrated by new blood vessels. If the transplant is fairly thick and of dense bone, there is some difficulty in nourishing its center, which, of course, is furthest removed from the peripheral blood supply. This has been clearly indicated, in all of Carter's transplants that have been in position for six months or longer, by a line of absorption in the middle of the transplant, giving the impression that it is a small medullary canal, which in fact it is.

In the case of cartilage, which contains no

blood vessels, nourishment is distributed by means of intercellular circulation. It is this difference in the method of receiving its nourishment that accounts for the fact that cartilage may be introduced as a transplant into the soft tissues and that its permanency will not be affected by the circumstance that it is not in contact with living, periosteum-covered bone. In fact, even if it is in contact with bone, it never establishes bony union.

Regarding other materials used for reparative work, most plastic surgeons regard ivory and paraffin as foreign bodies, yet such an authority as Joseph continues to use elephant tusk ivory implants in nose work, Mootnick¹⁷ seems to favor it, and Pollock¹⁸, of Chicago, prefers ivory to either bone or cartilage, the advantages being, despite its being a foreign body that there is no double operation, no risk of infection or fracture. Pollock suggests that cartilage transplants, in order to secure fixation, be perforated in the hope that connective tissue will grow through the holes.

I, personally, have found that the use of ivory for implants leaves much to be desired. Its only advantage is the saving of the operation for the removal of cartilage. In correcting saddle noses, when it was impossible for the patient to take the necessary time for the cartilage transplantation, I have substituted a long, narrow, properly shaped piece of celluloid, with excellent results. This material is resilient and is not absorbed; it neither gives rise to tissue reactions of any consequence nor does it make the patient feel conscious of a foreign body in the nose. It is my practice to make multiple perforations in the foreign-substance inlays for added fixation, as recommended above, but I have not found this procedure necessary when using autogenous cartilage.

Eckstein¹⁹, who in 1901 introduced the use of hard paraffin (with melting point above 50° C.) states that it still gives excellent results. He uses it for interventions on the face and to a limited degree for breast plastics, and states that it is not absorbed.

In this I do not agree with him. The use of either the hard or soft paraffin no longer has any place in plastic surgery. The paraffin is to a certain degree absorbed, and what remains becomes encapsulated in a network of fibrous connective tissue which in a short time becomes

a hard mass (paraffinoma). The nutrient blood supply within the mass becomes very meager and the pressure exerted from below, upon the overlying skin causes it to lose its natural color. The desired contour is lost within a short time, leaving an unsightly nodular appearance. I have had occasion to remove many such masses and cannot emphasize too strongly, the undesirability of this material.

Methods. Rush and Rush²⁰, Blair²¹, and others mention the desirability of making exact plaster models of a facial defect before attempting its repair.

In the cosmetic restoration of the aged face, Maliniak²² states that when a large amount of redundant skin can be safely excised, a good immediate result is obtained, followed in a few months by a marked circulatory improvement of the skin. The stretching and wide undermining of the skin produces a secondary circulatory effect which often is quite remarkable; the senile complexion of the skin gradually improves because of vascular neoformation.

In remedying defects in the face it is well to consider Langer's lines of cleavage which roughly correspond to the wrinkles of old individuals; an incision made across a wrinkle or potential wrinkle is likely to gap widely and make an ugly scar.

Sheehan²³ mentions that in drawing together the wound edges after excision of a keloid scar they are approximated with little tension over a capillary tube of radium emanation, which appears to favor freedom of circulation and prevents ridging.

We now come to plastics of particular regions of the face or special conditions. For the repair of small saddle defects of the nose, Straatsma²⁴ uses a dermal graft, namely, de-epithelialized derma, which is prepared by shaving off the top layers of the skin, discarding them and using the basal layers as a subcutaneous graft. Von Eitner²⁵ was the first to use this type of free graft in 1924; no shrinkage allowance is said to be necessary. Blair²⁶, for partial losses and reconstructions, prefers a pedicled flap from the forehead, its superiority over other materials making up for the added facial scar. Mootnick²⁷ thinks costal cartilage best as, unlike bone, it does not shrink, heals well and gives a good cosmetic result.

Maliniak²⁸ describes a new method of plastic

repair of limited nasal depression, which consists of the endonasal transposition of the lateral nasal cartilages together with the subcutaneous tissue and their implantation into the dorsal depression. By this method the use of free cartilage grafts is rendered unnecessary and the deformed lateral cartilages are corrected at the same time, being remodeled and mobilized by the endonasal route.

Wodak²⁹ mentions a curious happening in nasal plastics. The inflammation set up by the presence of a foreign body, such as an ivory implant, may produce the formation of new tissue which helps the filling up of losses of substance.

I have observed this phenomenon in a number of cases from which I had occasion to remove ivory and celluloid implants. This reaction appears to be so constant that I should not hesitate to recommend the implantation of a foreign body for a brief period, for the express purpose of setting up this inflammatory reaction for the correction of saddle noses of a moderate degree.

Lieberman³⁰ reports an original method of correcting deformities of the skeletal part of the nose. After dissociation of the skin he makes an upward concave incision on the root of the nose, introduces an anchor-shaped piece of gold wire and pulls up the disproportioned or displaced skeletal part.

The lips and eyelids are receiving more attention in plastic work than heretofore.

Blair³¹ describes how vermilion bordered flaps may be switched from one lip to the other to improve defects. The superior coronary artery gives a good blood supply to the flaps. Straatsma³² mentions a case in which a defect of the lower lip was repaired by a tube-pedicled flap taken from the anterior fold of the neck and attached to the lip; this end portion being nourished from the end attached to the neck.

Gillies and Kilner³³ have devised a number of plastic operations for the correction of the secondary deformities due to harelip. The commonest contour deformity seen in old harelip and cleft palate cases is produced by flatness of the lip and depression of the nose. The plastic procedure that will be found most widely applicable to this type of deformity is the buccal inlay. It consists of the introduction of a Thiersch graft on a mold designed to free the

lip and nose from the underlying retroposed maxillae. Freeing and loosening the lip in this way allows the wearing of an upper denture.

Gillies has also devised what he calls the "Cupid's Bow" operation for cases of prolabium in double harelip; the prolabium is often placed so far down the lip that the lobule of the nose is dragged down with it. The plastic operation consists in discarding altogether the existing skin vermilion junction and making a new curved lip border at a higher level. The result is an attractive short lip with full mucous membrane.

With regard to the eyelids, Dantrelle³⁴ tells how he was the first, in 1916-1917, to employ a fusiform full thickness flap from the upper eyelid to cover a defect on the lower lid. Thus he revealed a source of replacement not only for the lids but for small defects anywhere on the face, provided there are no peculiarities of pigmentation. A very recent article by Blair³⁵ is a good example of the extent to which plastic surgery has been pushed in repairs and adjustments of injuries and defects of the eyelids. Not only the anatomy and contour of the lid but also of the structures that give it support are restored.

Special disease conditions of the face have had the attention of the plastic surgeon. Moure³⁶ describes how lupic tissue diminished about a very vascular flap supplied with a wide nourishing pedicle. The flap did not become contaminated but the abundant blood supply within it had a favorable influence upon the neighboring tissue, which favorable effect ceased when the pedicle was severed too soon. Such a flap must be left attached to its pedicle a long time. Much patience has enabled Moure to obtain cures in some cases of mutilating lupus of the face seemingly beyond the reach of any method of treatment. The continuous supply of blood to sclerotic regions otherwise with very poor blood supply is an excellent aid to treatment.

Tixier and Bonnet³⁷ report a case of extensive epithelioma of the eyelids, in which the tumor was removed and the defect in lids and face covered with a pedicled skin flap from the forehead. The pedicle was cut 13 days after fixation and the final result was highly successful. New and Havens have also used pedicled grafts in repairing the defects left after healing

following surgical removal of epithelioma of the face.

Plastics in Facial Paralysis. The work of Ballance and Duel³⁸ in the operative treatment of facial paralysis by nerve grafting and other procedures has commanded universal attention. Their method of procedure is to effect restoration of the continuity of the paralyzed facial nerve. They have proceeded on the assumption that anastomosis with another nerve alone will not suffice. In their method strips of fascia from the thigh are transplanted through an incision continuous from the temporal to the preauricular area, carried under the skin to a point on the chin where the strips are looped around a stanchion of paralyzed muscle and then returned by the same route to the point of entry and anchored. This maintains the facial muscles on that side of the face against the pull from the sound side. Movement and function of the muscles is effected by utilizing the innervation of the masseter and temporal muscles in the fallopian canal. Paralyzed muscles have the power of taking up the nerve current from living nerves with which they are brought into contact by nerve grafting. A piece of the external respiratory nerve of Bell in the axilla is used to fill the gap in the facial nerve. The authors insist that the operation be done immediately after injury and the severed nerve connected up.

Plastics of the Hypertrophied Female Breast.

At various times surgeons have attempted plastic operations for the reduction of pendulous or hypertrophied breasts. Operation is only rarely for strictly cosmetic or esthetic purposes but rather to remedy intolerable disability or a source of social and economic disadvantage. The older methods consisted either in amputation of the breasts or of large discoid excisions of the skin and underlying tissues on the anterior part of the breast, with fixation of what was left to the upper ribs—a mastopexy. But within the last decade or so many procedures have been worked out having for their object limitation of excision to the lower pole and posterior part of the breast and not involving the region of the galactophorous ducts so as not to interfere with breast feeding. For esthetic purposes operations have been devised for reforming of the hypertrophied breast following transplantation of the nipple with its areola to its proper site.

This transplantation may or may not, according to different methods, be effected in such a way as to preserve the function of the lacteal ducts. Some of the methods are characterized by attempts to prevent necrosis of the transplanted areolar area by not interfering with the blood supply provided by the internal mammary and thoracic lateral arteries.

Operations to completely disconnect the nipple and areola from the subjacent tissues and transplant and suture them in their normal site at the natural level have been done for more than a decade. Max Thorek³⁹ of Chicago was the pioneer in this type of operation and has done a large number in this manner, reporting excellent results. In Germany, Lotsch, Holländer, Biesenberger, Gläser, Joseph and several others devised different methods of doing this operation. In France, Dartigues has been its chief exponent, and in the United States Maliniak and others.

In Lotsch's⁴⁰ method, introduced in 1923, the nipple and areola with the subcutaneous tissue are circumscribed by a circular incision; an elliptic incision is made across the skin of the upper pole of the breast just above the areola, the skin freed from underlying structures and the nipple with its appendages slid beneath the detached skin into a button-hole bed already prepared at the proper level above. The under pole of the breast is then resected and the breast reformed from the remnants. Holländer's⁴¹ method is much the same, resection of a segment of the breast and circular incision of the nipple which is pulled up and fixed in place by cutaneous sutures. It gives a good result except that the breast is crossed by a scar; however, it is not so suitable for large hypertrophies. Dartigue's⁴² method of large resection of the lower part of the breast after transposition of the nipple and areola is especially applicable to large hypertrophies. However, it suppresses all possibility of lactation and runs the risk of necrosis by interference with the blood supply.

Joseph's⁴³ transposition of the nipple and areola is also a lifting up method, but his particular purpose is to insure the vitality of the transposed areolar part of the breast by leaving it attached to a wide skin pedicle which is severed later as mentioned by Maliniak⁴⁴.

Biesenberger⁴⁵ similarly transposes the nipple and areola, but preserves the lacteal ducts. In

reducing the hypertrophy he spares the important mammary blood vessels by making a vertical incision downward from the nipple to the submammary fold and a lateral incision, beginning near the axilla and sweeping downward to the under pole of the breast, then excavating the superfluous fatty and parenchymal tissues, the greater part of the upper and lower outward quadrants being removed, with cosmetic reconstruction of the breast.

There are many variations of these methods such as that reported by Fraenkel⁴⁶ in which the Lotsch and Biesenberger methods are combined with a good immediate cosmetic result.

Most of these procedures are two or even three-stage operations. In capable hands with a mastery of the technic good cosmetic results can almost be assured; but, apart from the dangers of infection and necrosis, there is a tedious and costly delay for the patient. There would appear to be no serious reason why a one-stage operation might not be equally successful, less risky and far more acceptable to patients. The really important part of the procedure is the preservation of the blood supply and as little interference with main vessels as possible.

Cosmetic breast correction does not apparently disturb the physiologic course of events during and following pregnancy. Biesenberger's⁴⁵ method of preservation of the lacteal ducts ensures lactation. He cites one case of normal pregnancy and spontaneous birth with ample lactation capacity three and one-half years after a Lotsch operation for bilateral pendulous breasts. X

Different from the foregoing is the procedure of plastic reconstruction of a breast in the case reported by Reinhard⁴⁷. Here the right breast had been completely amputated for cancer. Reinhard reconstructed a right breast by incising the left breast in two halves, leaving the nipple in place. The right half was transplanted by sliding it to the site of the right breast, leaving a pedicle of skin and fat connecting it to the remaining left half of the left breast. In a later operation the pedicle was severed. Two further operations were required for the re-forming of the two breasts. Reinhard constructed a nipple for the new right breast but he does not say how.

There are several other phases of plastic surgery that I have not mentioned here, the discus-

sion of which would make this paper unduly long. Some of these I shall deal with in future papers.

4737 Broadway.

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AMEBIASIS IN GENERAL MEDICINE

A Preliminary Report

FINDLEY D. JOHN, M. D., and

THOMAS L. DAGG, M. D.

CHICAGO

Ever since the dawn of modern medicine infection of the intestinal tract has claimed its untold thousands.

Physiology, pathology and bacteriology of the tract, all have been studied, and a great deal of practical knowledge has been obtained by these departments of medical science and research.

But our purpose in this paper is to point out the fact, and direct attention to the paramount importance, of *Parasitology* of the intestinal tract; and to the frequency of parasitic infection, particularly to the various forms of ameba in this and in other parts of the human system.

Amebic dysentery, of course, is well known and well recognized in this country. And its wide geographic distribution is becoming more and more a matter of concern to public welfare and public health. But in our opinion from cases studied, amebiasis is potentially the direct or indirect cause of a far greater amount of disease and ill health in human carriers in this country than all other intestinal infections combined,—none of which is evidenced by the dysentery form.

After many months of careful routine examination of stools with improved technic and skilled technicians, we find that the ameba is a common inhabitant of the human bowel. In over a hundred selected cases so checked, all without history of dysentery, we found the animal parasites or cysts in all of them. In most of them the ameba *histolitica* was present. In many instances more than one form of ameba was present, as well as trichomonads, cercomonads, etc.

The group of cases we examined in this rou-

tine work included many ailments: as gastrointestinal, chronic constipation, mucous colitis, spastic colon and gall bladder; skin lesions, as psoriasis, acne and eczema; also epilepsy, asthma, migraine, Graves, mental depression, nephritis, cardiovascular arthritis, diabetes; they may also be isolated from aspirated infected gall bladder, from the stomach content of pernicious anemia, in sputum from lung abscess, and from the gum line in pyorrhea. These latter are motile, contain red blood cells in their protoplasm, and in all respects resemble those found elsewhere in the body. And we believe this to be a common source of spreading the infection from direct contact. Barrow¹ reports finding them in arthritic cases; Dobell² reports fifty autopsies of amebic brain abscess.

In early June, 1932, a case came under our (J) care, a young woman of nineteen, who had been treated for ten years for a so-called colitis. Many stools had been examined bacteriologically, and a laboratory first gave us a negative report on ameba. But after insisting that a more thorough and careful examination be made, the case was found to be highly positive for ameba.

This patient had been under constant medical care, was hospitalized repeatedly, had spent a great deal of time in Arizona and elsewhere for her health. When I first saw her she was a small anemic girl weighing 92 pounds. She responded promptly to amebic treatment. I then investigated the girl's family, father, mother, sister, and two small brothers, all of whom were highly positive for ameba. The father had a duodenitis, the mother complained of a generalized arthritis and constipation. The sister and two brothers had no apparent constitutional symptoms.

Writers on parasitology tell us that ameba *histolitica* is the only pathogenic form; which may be true so far as amebic dysentery is concerned. But they ignore, or are not aware of, the many other forms of illness in which these organisms are present, which, when removed from the tract the patients get well of their complaint. Hence the importance of investigating the intestinal tract for these parasites can not be over emphasized. For it is only by investigation that we get at the cause. And to discover the cause of disease is the very foundation of scientific medicine.

Bacteriologists have shown conclusively that great changes in virulence, morphology and

pathogenicity occur in bacteria due to environment and culture. Rosenow³ describes strains of streptococci which show all gradations of morphology, from perfectly round cocci to straight and clubbed bacilli. Rosenow and Jensen⁴ also describe the selective localization powers of various strains of strep for certain portions of the body, e. g., one strain has selective localization for joints; another for the heart; another for the nervous system, etc. And that this power of selective localization is also modified by cultural environment of the specific strains.

Now, if culture and environment modify the form as well as the virulence of bacteria which produce disease, we should at least expect to find some variations in the virulence of amebic infections. And this is precisely what we do find. We find them in liver abscess; McDonald⁵ of London reports cases of lung abscess and lower lobe congestions due to the ameba; he also reports their invasion of the spleen and the genito-urinary tract as well as the brain.

We believe that amebiasis is a common infection in this country; that it is endemic in the temperate zone as well as in the tropics; and that it manifests itself in a variety of complaints, more or less chronic in character, and entirely apart from the acute and epidemic form of amebic dysentery.

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THE SCHILLING DIFFERENTIAL BLOOD COUNT

Its Significance as an Aid to Diagnosis in Typhoid, Malaria and Undulant Fever

FANNY BELL WARNOCK, A.B., M.T.

CHAMPAIGN, ILLINOIS

The blood picture in typhoid fever is generally accepted as a leucopenia with lymphocytosis. While studying routine Schilling differential blood counts in this hospital, repeated observations on cases with persistent high or unexplained fevers have suggested a differential count fairly constant in typhoid fever. The peculiar left shift noted in the polymorphonuclear neutrophilic

From the Laboratories of the Burnham City Hospital, Dr. B. G. R. Williams, pathologist.

leucocytes has been present irrespective of leucopenia or lymphocytosis. In cases of mild but continued fevers where polymorphonuclear neutrophils were within normal limits, only the Schilling differential was suggestive of the blood findings in typhoid fever. Several such observations were followed by positive bacteriologic findings.

In 18 cases, including 35 blood counts, where typhoid was considered, bacilli of the typhoid group were isolated from ten. Where culture material was not submitted, agglutinations were positive in dilutions of 1:160 to 1:1280. Only 5 cases showed a white cell count below 6,000. Only 8 showed lymphocytosis above 35 per cent. But in 15 cases there was an extreme left shift of polymorphonuclear neutrophils amounting to a ratio of 1:1 or more of total non-segmented to segmented cells. Of the three remaining, the counts were not secured from two cases until late convalescence. The third atypical count was from an ambulatory patient in for observation. He had no fever, gave no history of typhoid, but on two occasions *B. paratyphosus* Beta was isolated from his blood stream. The second culture was confirmed by a duplicate specimen sent to the Bacteriology department of The University of Illinois. In short, this blood picture of normal or reduced white cell count together with young polymorphonuclear neutrophils tending to outnumber the mature segmented cells was regularly present during the febrile state in all proved cases of typhoid. It occurred irrespective of lymphocytosis.

Where typhoid fever was questioned but never proved by repeated cultures and Widal's, one of three blood changes was observed: 1. Where other diagnosis was definitely reached it was noted that either the total white cell count was 10,000 or well above that or else the shift index never exceeded 1:1, rarely ever reaching that proportion. 2. In a few cases of acute enteritis although cultures were negative, nevertheless the blood picture repeatedly approximated that observed in typhoid. 3. Where the diagnosis was eventually settled as undulant fever or malaria, this shift ratio was equal to or often greater than that seen in typhoid fever.

Of 10 cases where malarial parasites were found in blood smears, 4 showed total white count under 6,000. All the counts were under

10,000. Six showed lymphocytes above 40 per cent. Each of the ten showed a shift ratio of 1:1 young neutrophils to mature, while 6 of them showed 2:1 or more. (This ratio is normally placed at 1:16.)

Of 10 cases of long continued fever where *Brucella* agglutinations paralleled significant clinical manifestations, only one total white count was below 6,000. Only one (case 1) Table 3 was above 10,000, and it was taken 10 days after the acute throat and joint symptoms had subsided. During this time the total count had been normal. This count of 12,000 was accompanied by 9 per cent. eosinophiles. Blood counts from each of these 10 cases showed at some time, lymphocytes well above 40 per cent. In 9 out of the 10, the shift index varied from 1:1 to 5:1. Case 10, Table 3, with a shift index of 1:2, showed 56 lymphocytes and 4 eosinophiles, agglutination to at least 1:1280 and had been ill for several months, with no definite diagnosis.

This blood picture of normal or low white cell count with extreme left shift of polymorphonuclear neutrophils has been observed in influenza, diphtheria, tuberculosis, chickenpox, bacillary cystitis, and sometimes in arthritis, mastoiditis, appendicitis or cholecystitis. However, the shift to left has rarely resulted in so high a shift index as in these three diseases cited above. In typhoid fever where blood counts were made at frequent intervals throughout a period of weeks, this blood picture has remained constant. So far, we have not found this to hold true for diseases other than typhoid, undulant and malarial fever. Gradwohl,¹ however, reports serial counts of three cases of tuleremia, giving a similar Schilling differential even before agglutinations are positive.

Summary. It has been noted in 15 cases of typhoid fever, 11 cases of undulant fever and 10 cases of malaria, that beside the low white cell count and frequent lymphocytosis, during the height of the fever there occurred regularly a concurrent marked left shift of polymorphonuclear neutrophilic leucocytes where the young band forms tended to outnumber the mature segmented cells. In the majority of cases where these diseases had been questioned but not proved, this blood picture has been absent. In those cases where this blood picture has been present with suggestive clinical symptoms it has been followed by confirmative laboratory findings.

Conclusions. In typhoid fever a shift ratio of 1:1 or higher, non-segmented to segmented polymorphonuclear neutrophilic leucocytes, accompanied by a leucocyte count not over 10,000 has been a constant finding throughout the course of the fever.

This blood picture has also been observed in counts taken at random in malaria and undulant fever.

The high shift ratio has been a more constant finding than leucopenia or lymphocytosis in the 39 cases studied.

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For helpful suggestions and for criticism of the usefulness of this work to a physician, I am indebted to my friend, Dr. J. S. Mason of Urbana, Illinois.

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TABLE I. REPEATED COUNTS IN TYPHOID

No.	Date	W.B.C.	Schilling Differential					Ly	LM	E	B
			P.N.	M	J	St	Seg				
6	7/6	4,200	79	..	2	67	10	20	1	..	..
	7/7	3,800	62	..	3	56	3	34	4	..	..
	7/8	3,600	74	..	6	52	16	24	2	..	..
	7/10	2,500	69	..	2	58	9	31	..	..	..
	7/19	2,900	57	..	2	35	20	40	3	..	..
	7/29	3,100	..	..	..	..	..	..	..	..	..
	8/6	13,400	62	..	1	29	32	36	2	..	..*
	8/19	15,500	70	..	..	29	41	24	4	2	..*
7	8/5	5,600	68	1	8	52	7	22	9	1	..
	8/7	6,000	73	1	6	47	19	24	3	..	..
	8/8	8,400	66	..	..	49	17	27	7	..	..
	8/11	8,700	64	..	2	42	20	26	10	..	..
	8/14	7,300	70	..	..	50	30	22	6	1	1
	8/25	3,500	57	..	3	28	20	36	6	1	..
14	10/12	8,400	68	..	3	45	20	27	4	1	..
	10/14	7,200	72	..	3	34	35	21	6	1	..
	10/16	7,100	73	..	1	38	34	22	5	..	..
	10/23	6,000	50	..	2	38	10	44	2	2	2
	10/30	5,300	52	..	2	34	16	35	12	1	..

*Pneumonia.

TABLE 2. SCHILLING BLOOD COUNTS IN MALARIA

No.	W.B.C.	Schilling Differential					Ly	LM	E	B
		P.N.	M	J	St	Seg				
1	4,700	55	..	..	29	26	43	2	..	..
2	9,700	63	..	4	39	20	28	8	1	..
3	4,800	65	1	2	44	18	28	5	2	..
4	6,400	40	1	3	29	7	52	7	1	..
5	7,800	67	1	2	37	27	31	1	1	..
6	low*	73	..	3	48	22	26	..	1	..
7	low	45	..	..	32	13	48	7	..	..
8	low	56	2	1	30	23	41	3	..	..
9	4,300	34	..	..	24	10	57	4	1	4
10	4,100	35	..	1	22	12	58	7	..	..

TABLE 3. SCHILLING BLOOD COUNTS IN UNDULANT FEVER

No.	Date	W.B.C.	Schilling Differential					Ly	LM	E	B
			P.N.	M	J	St	Seg				
1	2/13	7,700	31	..	..	26	5	66	3	..	..
	2/24	12,000	64	..	4	40	20	24	3	9	..
2	3/9	6,000	76	..	4	49	23	31	3	..	..

3	3/23	7,000*	56	..	..	22	34	42	2	..	..
3	9/9	5,500	51	..	2	25	24	44	5	..	..
4	11/12	8,500	61	..	2	25	34	37	2	..	..
	11/29	6,400	51	..	1	37	13	48	1	..	..
5	11/29	6,100	39	..	..	14	25	56	1	4	..
6	12/30	6,100	39	..	3	22	14	54	7	..	..
7	6/24	6,400	37	..	..	22	15	51	12	..	..
8	7/1	6,400	40	1	3	29	7	52	7	1	
9	7/16	6-7,000*	41	..	1	24	16	50	9	..	..
		(est.)									
10	1/28	6,100	37	..	..	20	17	49	12	..	2

*Total count estimated from smear.

DIVERTICULUM OF THE BLADDER
WITH REPORT OF AN UNUSUAL
CASE

Review of the Literature

HARRY C. ROLNICK, M. D.

PATRICK H. McNULTY, M. D.

CHICAGO

A diverticulum of the bladder is a pathological condition resulting from separation of the muscle bundles through which the mucosa herniates carrying a larger or smaller number of muscle fibers, which together with the serosa form a sac whose cavity communicates with the bladder by a large or small orifice. The smaller orifices are surrounded by the bladder musculature in a sphincter like manner and are called true diverticula. Those with larger orifices have no sphincter like aperture. Their contents empty readily with that of the bladder. They do not require surgical treatment and are called false diverticula.

Practically all early authors recognized two types of diverticula, namely, congenital which exist at birth as the result of embryological anomalies, and acquired which develop after birth as the result of obstruction at or below the vesical orifice with consequent abnormal increase of intravesical pressure. Clinical differentiation of the two types is confusing and studies made during recent years lead one to believe the terms are poorly chosen. The above classification depends upon the supposed difference in etiology for which exact proof is wanting. The number of men whose names are recorded in the literature on this subject are legion and are listed in chronological order from the time of Hippocrates to the present by Polkey. Lowseley and Gutierrez divide the history into ancient and modern eras, each with a sub-period. The first period of the ancient era dates from the beginning of medicine with the names of Hippocrates, Aristotle,

Galen, Celsus, Von Helmont, and Paracelsus in the prehistoric period of science; and Pierre, before and after the beginning of the Christian era when perineal lithotomy was performed and all physicians were practical urologists. Then we come to the time of Morgagni, Haustet, and Cruveilhier, in which all findings were based on autopsies and anatomical studies. True diverticula were considered anomalies and not by any means a definite pathological entity. The second period begins with Virchow, Frank, Englisch, Hauser, and Chopart and is characterized by histological and clinical studies. During this period the most striking theories of the formation of diverticula were advanced, but to Haustet and Cruveilhier are due credit for the theory of "hernie tuniquaire" or hernia of the mucosa be-



Fig. 1. Cystogram: Urethral catheter in place in bladder and ureteral catheter coiled in diverticulum. Diverticulum larger than bladder.

tween muscular trabeculae. Englisch, of this period, is credited with originating the classification into congenital, based on the presence of muscle bundles in the sac walls, and acquired, based on the absence of muscle bundles in the walls. Hinman in 1919 after histological study of a large number of specimens refuted this concept).

The modern era begins with the names of Nitze and Albarran and the discovery of the cystoscope.

The second period of this era is characterized by the development of roentgenology, urography, and the use of the cystogram by Wulf, Schamberg, Perthes, Saglitzer, Voelcker, Von Lichtenberg, Papin, Young, Braasch, Keyes and Hinman up to the present date when these procedures have been universally adopted.

Most writers among whom are Englisch, Von Eberts, Fischer, Brongersma, and Judd accept the dual classification, Some, Lower, Lerche, Wagner, Serralach, believe all are acquired. Cabot, Israel, and Hofmakl, believe the great majority are congenital.

The following evidence is advanced in support of the congenital theory:

1. Occurrence in females without evidence of obstruction and with thick walled sacs refute the concept of herniation of the mucosa through the musculature.

2. The diverticula found with prostatic hypertrophy were usually relatively small, frequently multiple, and have thin walls.

3. The literature in the past held forth the fact that diverticula had never been produced experimentally in animals. In 1928 Herbst, Polkey, and Weller were successful in producing true diverticula in animals by causing obstruction of the vesical orifice surgically, and increasing the intracystic pressure by introducing infection.

The evidence supporting the theory of acquired diverticula may be summarized as follows:

1. Diverticula have been produced experimentally in animals.

2. Diverticula are seldom found in females and young male children. Hinman reports after a study of 205 cases from the literature and 21 personal cases, less than 0.4% in females. There were only 7 undisputed cases in females and these gave a long history of frequency of urination and had marked trabeculation and cellulose formations as evidence of obstruction.

3. L. P. Wershrub, in 1932, reported a case of the large diverticulum in a female with urethral caruncle and states that 90% of the cases studied had caruncles which he thought caused the obstruction.

4. Kutzman, in 1933, reported an analysis of 100 cases in which obstruction of some form was present in all cases.

5. Diverticula are most frequent in males over

50, that is, at or beyond the age when vesical orifice obstruction commonly occurs.

6. Associated evidence of obstruction as trabeculation or hydroureter are almost universally present. Absolute exclusion of obstruction in some form, at some time, in supposedly congenital diverticula is not possible. Diverticula are more common with sclerosis of the vesical orifice than with prostatic hypertrophy. This is explained by the fact that sclerosis begins earlier in life and the obstructive pathology is usually present over a longer period of time.

The consensus of opinion of most writers may be summarized as follows:

It cannot be proven beyond a doubt that congenital diverticula may occur but they are not common. Most diverticula develop as a result of obstruction to micturition coupled with the presence of weak areas in the bladder wall. The floor of the bladder and margins of the trigone are fixed areas to which the more or less freely movable parts of the bladder wall are attached. Intravesical pressure will exert its greatest strain on areas near the fixed portion. Hypertrophy of the muscle bundles occurs with the associated increase of the polyhedral spaces between, until the mucosa herniates through the musculature. Once the herniated portion is freed of most of the musculature, it can increase in size indefinitely.

The diagnosis of the condition is made only by special examination as the symptomatology is that of the associated obstruction of the vesical orifice. Simple cystoscopic examination reveals the diagnosis in a large percentage of cases. W. B. Tatum in 1927 described a new instrument which carries a light on the end and can be inserted through a cystoscope into the diverticulum for accurate examination of the cavity. Severe diffuse cystitis may at times cause the orifice to be overlooked due to edema of the vesical mucosa. A diverticular orifice in the blind spot of the bladder may be overlooked with the ordinary instrument. The rare cases of carcinoma of the bowel with a fistulous opening into the bladder may be wrongly diagnosed.

Intravenous urography is valuable especially if the ureter opens into the diverticulum. Cystograms made after injection of air or any of the opaque solutions recommended give accurate information as to the size and location and fre-

quently aid one in choosing the operative procedure best suited.

Treatment. The discussion of the treatment may well be opened by quoting from Judd who stated that no treatment is of value except radical excision. The choice method of approach is the suprapubic. To this may be added the importance of removing the obstruction at or below the vesical orifice. As with many modern surgical procedures the perfected technique has been developed by the trial and error method.

Pean in 1895 and Czerny in 1898, were the first surgeons to successfully remove diverticula. Riedel performed an excision in 1903; Pagenstecher and Von Eiselsberg in 1904; Young reported three cases of excision in 1904. Complete excision was done eight times thus far. Pagenstecher operated by resection of the sacrum. The fistula healed slowly and reopened again. In the early cases no record of the condition of the vesical orifice appears. In all cases where examination for residual urine was recorded, residual urine was found. With the advent of the cystoscope, study of obstruction of the vesical orifice began to be noted in reports.

Kutzman quoted a case from Lennander, a boy 21 months with acute retention for which cystotomy was performed. A diverticulum was found and the septum tied with a ligature which resulted in failure. At a second attempt, the septum was clamped. The immediate postoperative result is not given and the boy eventually died of kidney infection. Young cut the orifice in one case and sutured the margins. He reported improvement but 300 cc. of residual urine remained. Pausson recommended suture of the orifice without excision. This was done in one case but the end result was not given. L. Jungren anastomosed the diverticulum and bladder in one case in a boy of 12 years. Cabot in 1910 reported 10 cases which were treated by radical excision and described the method of packing the diverticulum with gauze to facilitate removal. Marion in 1913, split the bladder down to the diverticulum and excised it. In 1922, Geraghty described a procedure which changed a tedious and difficult operation to a relatively simple one, applicable in a certain number of cases. He incised the bladder mucosa at the neck of the diverticulum and stripped the mucosa from the sac wall. Young modified this operation by in-

serting a glass tube into the diverticulum and using suction to invaginate the mucosa before resection. The wounds should be drained intravesically and extravesically. One may conclude from these studies that the intravesical approach with invagination of the mucosa of the diverticulum is the method of choice when possible; otherwise the extraperitoneal, extravesical method of resection must be used. A word of warning may here be given. All diverticula do not lend themselves to removal by invagination of the mucosa. One should not attack the problem unless he is competent to perform the extravesical removal in case of failure of the more simple procedure.

Technique of Extravesical Extraperitoneal Diverticulectomy. The technique of the operation consists of first performing a suprapubic cystotomy. With the bladder opened, the diverticular orifice should be located and a definite plan of attack outlined. One may stretch the orifice and insert the finger to get an idea of its size and ramifications. The diverticulum may be packed full with gauze as described by Cabot, or a diverticuleve as described by Howard may be attached to the finger and inserted into the diverticulum to facilitate manipulation, or the diverticulum may be removed without inserting anything into its cavity. The peritoneum is next stripped away from the vertex of the bladder and this procedure continued until it has also been removed from the diverticulum if possible. If this procedure is impossible an incision may be made in the peritoneum and the diverticulum lifted upwards and extraperitonealized by attaching the free edge of the peritoneum below the orifice of the diverticulum. The location of the ureter should have been previously outlined if possible, by the use of urography or by inserting a catheter into the ureter after the bladder is opened.

The removal of the diverticulum is a difficult, long, and tedious operation and the surgeon must use constant care to avoid injury to vital structures. The walls of the diverticulum are frequently firmly adherent deep in the pelvis in the region of the iliac vessels. Injury to the ureter, iliac vessels, and the vas deferens must be avoided. By carefully carrying the dissection around the entire diverticulum one reaches a point where the diverticulum is entirely free with

the exception of its attachment to the bladder. When this point in the operation is attained, the diverticulum should be excised from the bladder and the opening in the bladder closed with chromic catgut sutures. The original incision in the bladder is next closed. A mushroom catheter should be left in the bladder. The space lateral to the bladder should be drained and the space of Retzius should be drained. The abdominal incision may be closed in the usual manner.

CASE REPORT

Case No. 397247, Cook County Hospital, Mr. C. H., aged 62 years. The patient was admitted to the hospital, November 18, 1933, with acute retention of the urine. Inability to urinate was present for 3 months. His family physician inserted an indwelling catheter which was worn for the greater part of the time. Two weeks previous to admission, hematuria developed. Previous to the onset of retention nocturia was present 4 times a night for the past 6 or 8 months. Previous to that nocturia was present once a night for the past 5 or 6 years and had gradually increased to 4 times. Diurnal frequency was not disturbed.

The temperature was 98, pulse 86, respiration 20, and the blood pressure 144/78. The essential findings of the physical examination were as follows: The prepuce was markedly edematous from the presence of the indwelling catheter. Rectal examination revealed a prostate moderately enlarged; indurated to the second degree; the left lobe larger than the right; the median furrow deep; the lateral sulci distinct; the seminal vesicles not palpable and the intervesicular notch normal.

A No. 21 cystoscope passed with difficulty and 300 cc. of residual urine was found. Marked trabeculation and diffuse cystitis were found so that a careful examination was postponed until bladder irrigations somewhat relieved the cystitis so that a better view could be obtained. On December 12, 1933, cystoscopic examination was repeated. Marked trabeculation of the bladder wall was found and the opening of a diverticulum in the bladder wall was seen well above the trigone on the left side. This opening had a sphincter like orifice and could easily be overlooked in the presence of the severe cystitis. The P. S. P. test showed 40% excretion in the first hour and 35% in the second hour. The blood urea nitrogen was 28.45 mgm. per 100 cc., and the creatinin was 2 mgm. per 100 cc. Because of inability to retain an indwelling catheter, intermittent catheterization was resorted to. On December 12, 1933 diverticulectomy was performed by the extravesical extraperitoneal method. On December 22, 1933 the urea nitrogen was 22.30 mgm. per 100 cc. of blood and the creatinin was 1.7 mgm. per 100 cc. of blood. On January 3, 1934 a suprapubic prostatectomy was performed.

The pathological report was as follows: Gross examination revealed a sac like structure 14 cm. in diameter forming a spherical diverticulum. The surface

was covered with occasional fibrous tags. The wall was 5 mm. thick.

Microscopic examination revealed a diverticulum of the urinary bladder composed of mucosa and muscular layers.

The pathological examination of the prostatic tissue removed revealed a prostate $3\frac{1}{2} \times 3\frac{1}{2} \times 1$ cm. consisting of 2 lateral lobes and a posterior commissure. The suprapubic wound continued to drain urine and on March 10, 1934 a secondary closure of the fistula was performed. Following this the wound rapidly closed and the patient was discharged from the hospital on April 8, 1934.

Cystoscopic examination following discharge from the hospital revealed absence of residual urine, a normal bladder mucosa, practically complete disappearance of trabeculation and a well healed bladder wall where the diverticulum had been resected. The urine examination was normal. The suprapubic wound was well healed.

104 S. Michigan Avenue.

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COLLAPSE THERAPY OF PULMONARY TUBERCULOSIS

MINAS JOANNIDES, M.S., M.D., F.A.C.S.

Associate in Surgery, College of Medicine,
University of Illinois

CHICAGO

Tuberculosis is the most common and the most insidious of all diseases. All of us here have sometime or other in our lives been infected with tubercle bacillus. It is true that only a certain small percentage of us will die of tuberculosis. The remaining majority have or will develop a sufficiently great immunity against the organism of tuberculosis to survive the effects of the infection and die from some other cause. Being, therefore, such a common infection it behooves all of us to consider its various aspects in the hope that, as practitioners of medicine, we may prolong a few lives.

The limitations placed upon the time for this presentation will not allow a lengthy discussion on the bacteriology, nor on the pathology of this entity. Prevention and treatment of pulmonary tuberculosis should be based upon a thorough knowledge of the peculiarities of the organism and the reactions set up by the animal body in order to overcome this invasion. We have not as yet reached close to the ideal in the treatment of tuberculosis of the lung. It is true that we have made progress but not enough as yet to hope for cures. We should look forward to some means of attacking the tubercle bacillus before it has played havoc on the lung tissue. At the present time the patients that come for treatment are those who already show signs of lung destruction. We may follow the National Tuberculosis Asso-

From the Department of Surgery, College of Medicine, University of Illinois, Chicago, Illinois, and the Pneumothorax Clinic, Municipal Tuberculosis Sanitarium, Chicago.

Presented to Surgical Section, Illinois State Medical Society, at Springfield, May 16, 1934.

ciation classification and call a case minimal or moderately advanced just for the sake of following an accepted standard, but we all know that at these stages the lung has reached the stage of destruction and the tubercle bacillus has embedded itself into the tissues in such a way as to lie dormant for many years and possibly strike back again whenever the resistance of his host has been lowered. We must not, therefore, hope for cures in tuberculosis, but we can look forward to quieting or arresting the progress of the disease. Collapse therapy of tuberculosis with the aid of other means for increasing the resistance of the patient offers the greatest hope at the present time.

The advantages of collapse therapy are manifold. This mode of treatment reduces the time of invalidism and, therefore, is of definite economic importance. The sooner a tuberculous patient is rehabilitated, the sooner he will earn a livelihood and thus be no longer a charge on his friends, relatives or the State. Due credit must be given to Dr. Frederick Tice and Dr. A. J. Hruby, directors of the Chicago Municipal Tuberculosis Sanitarium, for launching a second and very important aspect in the prevention of tuberculosis. They emphasized the public health aspect of collapse therapy and to this extent have developed a collapse therapy program planned to be carried out on a large scale. Admitting that every open case of pulmonary tuberculosis is a dangerous source of infection, and assuming that one open case due to carelessness or ignorance may infect a large number of others, it is obvious that every possible means must be drafted to break such a contact. Because Chicago deals with the problems presented by the majority of other large cities in our country let us discuss the situation as it is in this city.

There are in Chicago at the present time three large institutions that are supported by the taxpayers and have a total capacity of about 2,000 beds available for tuberculous patients. There are approximately about 5,000 open cases in Chicago who cannot be hospitalized because of lack of space in the free tuberculosis hospitals. These carriers come in daily contact with infants, with children, and others who from overwork or overplay have a lowered resistance. In spite of the Glacklin act which operates in Illinois, these patients cannot be isolated and, therefore, we

cannot easily break the contact. These patients are usually poor and cannot avail themselves of the opportunities for care offered by private hospitals or sanatoria. It is obvious, therefore, from a public health viewpoint that the sooner these patients become sputum negative the easier we may control the spreading of tuberculosis.

I will not burden you with an exposition of the historical development of collapse therapy. It would be injustice and disrespect to the efforts of many great men who have devoted a lot of their time to the development of collapse therapy, if we did not mention such names as James Carson, Friedrich and Brauer, Wilms and Sauerbruch, Carlo Forlanini, John B. Murphy, Emile Rist, Willy Meyer, Carl A. Hedblom, Hans Jacobus, Howard Lillienthal, Chevalier Jackson, Evarts A. Graham, John Alexander, and Gale and Middleton. These men and a host of lesser known workers have paved the way by stepping stones so that collapse therapy is no longer on an experimental basis. By their untiring efforts these men have laid the foundations for the new and rapidly developing specialty of thoracic surgery. I look forward to the time when no one would hope to undertake the care of a tuberculous patient unless he is well trained in the science and art of thoracic surgery.

The theoretical basis for collapse therapy is the induction of topical rest in the lung. It is obvious that even when the patient is at absolute bed rest that he has to breathe from 20 to 30 times per minute or 120 to 180 times per hour or 3,000 to 4,300 times per day. It is necessary, therefore, for this lung to expand and contract an equal number of times. The lung, because of the continuous respiration, is forced to continue working even though the remaining parts of the body are at rest. Rest is the basis of treatment in most ailments. In the case of a gastric ailment we limit the food intake to give that stomach its necessary amount of rest and give it a chance to recuperate. In the case of a fracture or dislocation we splint the extremity to allow it to rest. Why not then use some means for lung splinting to aid in its recovery? We have definite clinical evidence that the body itself is aiming in that direction in the case of pulmonary tuberculosis. A natural attempt at limiting lung activity can be noted by the retraction of the ribs on the diseased side. Intrathoracically we

also note a displacement of the mediastinum or the diaphragm or both when lung pathology is present. But because the chest wall is fairly rigid there is not a sufficient splinting in most cases to bring about a quiescence or an arrest of the pathologic process. It is for this reason that a mechanical collapse of the lung becomes necessary to accomplish the desired effect. Besides inducing local or topical rest, collapse therapy causes tuberculous cavities to close and in some cases to heal. Closure of cavities is of great importance because the amount of sputum becomes diminished and eventually disappears. Because the positive sputum is the most important source of infection the spreading of tuberculosis will be diminished by this result. Furthermore, positive sputum may be spilled in other parts of the lung particularly of the opposite side and cause a bronchogenic extension on that side. This source of danger is eliminated when the amount of sputum is reduced to a minimum. We know from experimental evidence that the lymph in the lung is propelled to a great extent by the expansion and contraction of the lung. Immobilization of the lung will, therefore, prevent the circulation of toxic and infected lymph which may induce signs of toxemia and keep the resistance of the patient at a low level.

The indications for collapse therapy are essentially the same for all procedures. An ideal case for collapse therapy would be one with a unilateral type of a lesion which shows a tendency towards fibrosis and retrogression of pathology. We know, however, that such a case, although ideal, is extremely rare and that most patients present a varying degree of bilateral pathology and a tendency towards a progressive lesion. It is this type of lesion that may kill promptly and it is in this type of patient that something must be done to check the progress of the disease. If a carefully controlled course of collapse therapy is instituted in this type of a case, the progress of the lesion will be checked and another life may be prolonged. Because this type of lesion is quite common and because artificial pneumothorax collapse offers the greatest hope, this form of therapy consequently becomes the most popular. It has the added advantage of being relinquished if the patient cannot tolerate collapse therapy.

From a technical viewpoint it is the simplest and the least shocking form of treatment. With

a little preliminary training anyone who knows the essentials of aseptic technic should be able to do pneumothorax collapse. Certain technical difficulties such as intrapulmonic injections of air, the amount and frequency of air injections, etc., have to be adapted to each individual case. Suffice it to say that one should prefer to give more frequent injections with lesser amounts and more negative end pressures in the pleural cavity. In this manner he will always stay on the safe side and complications such as hydro or pyopneumothorax, or air embolism will be avoided. Bilateral pneumothorax may be of value in a certain group of patients, but this type of therapy should be carried out with a greater caution, and a more careful follow up. All patients with early lesions or progressive lesions should be treated with pneumothorax and not be subjected to any of the permanent collapse procedures until there is sufficient evidence of retrogression of the lesion. Any of the other procedures used will be determined by the individual case and the hobbies of the surgeon in the case. Some prefer pneumolyses while others do thoracoplasties. It matters not which procedure is used as long as the pathologic lung is satisfactorily collapsed and the patient has not been subjected to any unnecessary shock.

At the pneumothorax clinic of the Municipal Tuberculosis Sanitarium of Chicago in a total of 642 cases who received 11,530 injections from June 1, 1931, to November 1, 1933, the following end results may prove of interest. There were 73 per cent conversions from positive into negative sputum in the minimal cases as contrasted with 32 per cent conversions in far advanced cases. Likewise the patients who received collapse therapy for less than 6 months showed only 23 per cent conversions as compared with 76 per cent conversions in those who received treatments for one year or more. The following tables are given because of their comparative value. These figures include patients at the pneumothorax clinic up to August 1, 1933.

PNEUMOTHORAX CASES BY DIAGNOSIS:

	No. of Cases	No. of Pos. Cases	No. Con- versions	Per Cent. Con- versions
Minimal	24	15	11	73%
Moderately advanced.....	202	158	77	49%
Far advanced.....	203	180	58	32%
Total	429	353	146	41%

NUMBER OF CONVERSIONS FROM POSITIVE TO NEGATIVE CASES:

	Total Pos. Cases	Total Conversions	Per Cent. Conversions
Artificial pneumothorax.....	353	146	41%
Pneumothorax with phrenic....	84	28	33%
Phrenic cases	62	12	19%
Total	499	186	37%

PNEUMOTHORAX CASES BY LENGTH OF TIME UNDER TREATMENT:

	No. of Cases	No. of Pos. Cases	No. Con- versions	Per Cent. Con- versions
Less than 6 mos.....	244	210	48	23%
6 mos. to 1 year.....	86	69	42	61%
1 year or over.....	99	74	56	76%
Total	429	353	146	41%

These figures when analyzed show that the earlier the diagnosis and treatment is made the sooner the sputum is changed from positive to negative sputum. A comparison of the figures in patients who are moderately advanced and those who are far advanced shows that the percentage of conversion is diminished by almost 40 per cent when the patient is neglected so that his pathology progresses from the second stage to the far advanced stage. It should be noted that the figures show the combination of artificial pneumothorax and phrenic nerve resection denote patients in whom artificial pneumothorax alone could not produce the desired effect. In other words 33 per cent of the conversions produced by the combination of artificial pneumothorax and phrenic neurectomy represent patients who would have gone from bad to worse and eventually die of tuberculosis. Likewise, the figures for phrenic neurectomy patients represent those in whom artificial pneumothorax was either unsuccessful or the condition of the patient was such that artificial pneumothorax might have proved dangerous to the patient. Nineteen per cent of these patients have been converted from positive to negative sputum. This series of figures shows that one cannot depend entirely upon the use of one single method of collapse to produce the desired effects. With reference to the length of time necessary to carry on this treatment it is evident from the figures that the longer the treatment is carried out the greater the percentage of conversions. The optimum length of treatment for artificial pneumothorax is about fifty-five months or more. Unless there is definite reason for discontinuing artificial pneumothorax collapse this treatment should be carried

on until there are definite signs of healing. It is frequently necessary to resort to oleothorax in cases where there is a persistent expansion of the lung so that the intrapleural pressure rises very promptly to a dangerous level with the introduction of only small amounts of air. In such type of cases where the lung still shows definite evidence of pathology either oleothorax or one of the radical procedures should be resorted to in order to produce a satisfactory result.

It is obvious from the foregoing facts that collapse therapy is of definite value to the patient. It not only aids in the cure of the patient but it also prevents the spreading of the disease by the elimination of local tuberculous areas and also the conversion of a positive into a negative sputum. In closing one must emphasize the careful selection both of the patient and the surgeon for this type of therapy. The patient should have a tendency towards a retrogressive lesion and the surgeon should not only be armed with technical skill but should have an open mind and a kind heart so that he can put himself in the patient's place before making a decision. In this way the complications will be minimized, the cures will be increased, and collapse therapy will accomplish its purpose.

3810 Broadway.

DISCUSSION

Dr. M. Pollak, Peoria: We are trying to evaluate our results from collapse therapy by studying the mortality rates. In our institution, we are using collapse therapy since the early part of 1930. We have compiled the mortality curve of tuberculosis for the City of Peoria since the year 1920. I would like to show some slides giving our results.

In the year 1920, when the city had a population of about 76,000, we had 55 deaths from pulmonary tuberculosis with a mortality rate of 72.25 per 100,000. In 1929, when the population had increased over 100,000, we had 63 deaths with a mortality rate of 61.71 per 100,000, and in 1933 the number of deaths was 34 and the mortality rate 29.85, showing that since collapse therapy was started in 1930, the mortality rate from pulmonary tuberculosis has decreased in our city over fifty per cent.

In order to evaluate what influence the work of the Sanitarium had on the mortality, we have divided these deaths into two groups: The first group comprises the deaths which occurred outside of the Sanitarium, and the second the deaths which occurred in our institution and plotted the respective curves beginning with the year 1920. We found that the curve of the first group was practically flat from the year 1925 to 1931, inclusive, while in the second group the curve dropped down steeply from the beginning of 1930. When during 1932

more deaths have occurred in the Sanitarium than in the previous year and the curve of the second group shows an upward trend, the curve of the first group dropped down steeply, and in the year 1933 both curves became practically flat again at about the same level as during the previous year. This chart, we believe, shows that in 1930 and 1931, the number of deaths has decreased because fewer deaths have occurred in the Sanitarium. In 1932 and 1933 when the number of deaths in the institution has increased (and we have to add here that patients are admitted to the Sanitarium in all stages of their disease), the number of deaths has decreased outside of the institution. On the basis of these findings, we believe that the extensive collapse therapy we are practicing since 1930 was greatly instrumental in the decrease of the number of deaths from pulmonary tuberculosis in our city.

Dr. S. L. Governale, Chicago: I would like to ask Dr. Joannides the relative efficiency of thoracoplasty in the axillary line in comparison with thoracoplasty confined to the paravertebral line.

Dr. Minas Joannides, Chicago (closing): In answer to the question of Dr. Governale, I wish to state that it makes little or no difference which route is followed for the resection of ribs. The primary object in thoracoplasty is to get a sufficiently good collapse of the diseased lung. Either the posterior route may be followed or the axillary or anterior route. It is, of course, essential to insist on the multiple stage operation as originated by Dr. Hedblom. If the posterior route does not produce a satisfactory collapse then one must remove more portions of the ribs by the axillary or anterior route. Most of the pathology being in the apex it is very necessary to resect as much of the first rib as possible.

In closing I wish to again emphasize the necessity of early recognition of tuberculosis. Most patients do not come for treatment until very late. Many of them wait until there is a positive sputum or definite destruction of lung tissue. As you will note from the results of conversion from positive to negative sputum, the earlier the case receives treatment the more likely the patient is to become sputum negative.

AN OLD TIME DOCTOR

E. O. LAUGHLIN, M. D.

PARIS, ILL.

Recently there fell into my hands the original day book of Dr. John Ten Broeck, who practiced medicine in this county nearly a hundred years ago. I can recall him vaguely as a man of impressive bearing and build, with heavy brows and a patriarchal gray beard, staunch and stern in his ways—true to the type of the legendary country doctor.

Under present conditions a review of this old time doctor's records, wherein every entry is meticulously made in ink, including medicines

dispensed as well as fees charged, is peculiarly interesting. Enlightening, too, are his occasional brief comments. For his services he sometimes received cash, but more often apples, eggs, oats, notes and whatnot.

The record begins in May, 1840, and ends in 1842. The first entry reads: Alfred A. Fields, To Tr. Rhei Comp., three ounces, and Soda Comp., \$1.00. Another, May 19, John Holston, To visit daughter, bleed and purgative \$1.62½; to phial Med. 37½ cts. May 27, Abijah Paine, To phial Med. and Emplastrum picis Burgundi, \$1.00, and in brackets the comment, "ran off." May 28, a Mr. Tilford was debited to one phial of eye water, 25 cts. He proved ungrateful, too, and his failure to pay evidently sank deeper into the doctor's soul, for he comments in this case: "Ran off—the puppy!" May 30, Bart Whalen was charged with 12½ cts. for camphor, and at a later date 6¼ cts. Thomas Wisemore incurred a debt of \$2.50 for visit to daughter and paregoric. But Judge Connely, who must have lived nearby, paid but 50 cts. for a visit to his wife, and later only 25 cts. On August 27 is the entry, John Crawford, To visit Hermaphrodite, \$1.00. No treatment or comment is appended.

Another entry: Wm. Flood, To bleed wife, 25 cts.; another: Thomas McCord, To extracting tooth, 25 cts. David McCord was assessed \$5.00 for the reduction of a fractured arm. One of the highest fees recorded was for applying cups nine times, \$11.00. Within the period of two years covered by the records, many obstetrical cases were entered, for those were prolific times. For these the invariable entry was: To attention wife, accouchement, \$5.00.

To us the fees received by the old time doctor seem absurdly small. But evidently he was a good collector, taking his patients' notes for small amounts, and accepting all sorts of produce. And the cost of living was quite low. One patient is credited with \$4.60 for 23 bushels of corn; another with 26 cents for four dozen eggs; still another with 67½ cents for "water melons." Sooner or later, as the book shows, he managed to collect 90 per cent. of his fees, such as they were. The doctor led a plain, simple life, because life was perforce plain and simple in those good old days. And so, with fees ranging from 6¼ cents to \$11.00, he accumu-

lated a goodly competence and left a substantial estate.

One cannot put the ancient record aside without noting the therapeutics of the times. Bleeding and cupping were everyday procedures. Ointments and plasters were much in vogue, while quinine, calomel and castor oil were the drugs most prescribed. Armed with this dependable trio and with opium, paregoric, senna, spirits of nitre, squills, tartar emetic, ammonia and camphor the good old doctor was ready to combat all the ills that flesh of the olden times was heir to. And that he was fairly successful is attested by the recurrence of many names of patients throughout the book.

HIGH VOLTAGE

An electrician returned home from work one night to find his small son waiting for him with his right hand swathed in a bandage.

"Hello, sonny!" he exclaimed. "Cut your hand?"

The boy shook his head sadly.

"No, dad," he replied, "I picked up a pretty little fly, and the one end wasn't insulated."—*Answers.*

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday, January 9, 1935

LAY EDUCATIONAL PROGRAM

Overweight:

A Common Sense View of Overweight—Samuel Soskin, Director of Metabolic Research, Michael Reese Hospital.

Treatment of Overweight—George A. Harrop, Professor of Medicine, Johns Hopkins Hospital, Baltimore, Md.

Regular Meeting, Wednesday, January 16, 1935

Program presented by the Faculty of the Loyola University School of Medicine.

Introductory Remarks—Louis D. Moorhead.

CEREBRAL INFECTIONS

Diagnosis—Francis J. Gerty, Professor and Director of Division of Neurology and Psychiatry.

Medical Management—Victor E. Gonda, Clinical Professor, Division of Neurology and Psychiatry.

Surgical Management—Harold C. Voris, Associate Clinical Professor of Surgery.

Discussion: Italo F. Volini, George B. Hassin, Carl F. Schaub, A. Ettleson, Chester C. Guy.

Regular Meeting, Wednesday, January 23, 1935

BURNS—GENERAL PRACTITIONER'S NIGHT

"Treatment of Shock in Electrical Burns"—Hart E. Fisher, Chief Surgeon, Chicago Rapid Transit Company.

"Recent Advances in the Treatment of Burns"—Stan-

ley J. Seeger, Head of Surgical Department, Milwaukee Children's Hospital.

"Surgical Repair of Tissue Defects and Deformities following Burns"—Sumner L. Koch, Associate Professor of Surgery, Northwestern University Medical School.

Discussion: Daniel E. Murphy, F. W. Slobe, Frederick B. Morehead, Albert Montgomery, Michael L. Mason, Arthur R. Metz.

Regular Meeting, Wednesday, January 30, 1935

BLOOD DYSCRASIAS

"The Reticulo Endothelial System"—Richard H. Jaffé, Pathologist, Cook County Hospital.

"The Recognition and Differentiation of the Anemias"—Russell L. Haden, Professor of Medicine, Cleveland Clinic, Cleveland, Ohio.

Discussion: I. Pilot, James P. Simonds, Arthur F. Byfield, Wm. H. Holmes, Victor Levine, Carroll Birch, Howard L. Alt, Gilbert H. Marquardt, George Scupham.

Marriages

JAMES SLOAN ALTMAN, Pittsfield, Ill., to Miss Florence Mildred Clevon, June 5, 1934.

ELLIS R. CRANDLE, Gorham, Ill., to Miss Virginia Lee Williams of St. Louis, Nov. 28, 1934.

JAMES E. P. DAVIA to Miss Elsie I. Crabtree, both of Chicago, June 16, 1934.

SAMUEL LOUIS GOLDBERG, Chicago, to Miss Gertrude Beatrice Marks, of Detroit, Dec. 24, 1934.

Personals

Dr. Oscar B. Nugent addressed the Lake College of Commerce at Waukegan, Ill., Feb. 1, on "Safeguarding the Eyes."

He will address the Champaign County Medical Society, Feb. 14, on "The Family Physician, Eye Specialist and Eyes."

Speakers before the Chicago Society of Allergy, January 21, include Dr. Michael Zeller on "Woods' Filter in the Diagnosis of Skin Reactions".

Dr. Otto Saphir, among others, addressed the Chicago Pathological Society, January 14, on "Anomalies of the Circle of Willis and Resulting Vascular Disturbances of the Brain".

Dr. Theodore N. Rafferty, Robinson, addressed the Crawford County Medical Society in Robinson, January 10, on "Intra-Abdominal Hemorrhage of Ovarian Origin".

Dr. Irving I. Muskat discussed "Tuberculosis of the Middle Ear in Pulmonary Tuberculosis,"

among other speakers, before the Chicago Laryngological and Otological Society, January 7.

Dr. Arnold Knapp, New York, addressed the annual meeting of the Chicago Ophthalmological Society, January 21, on "Present Operative Treatment of Detachment of the Retina in Europe".

The La Salle County Medical Society was addressed at La Salle, January 10, by Drs. Italo F. Volini, Chicago, on "Etiologic Diagnosis of Heart Disease," and Robert A. Black, Chicago, "The Rheumatic Heart in Children".

Dr. Anton J. Carlson, chairman, department of physiology, University of Chicago, spoke on "The Physiologic Aspects of Heart Disease" at the annual meeting of the Chicago Heart Association, January 8.

A joint meeting of the Chicago Orthopedic Society and the Chicago Roentgen Society was addressed, January 10, by Drs. Edward L. Jenkinson on "Bone Lesions" and Dallas B. Phemister on "Pathology and Diagnosis of Tuberculous Arthritis".

Speakers before the Chicago Surgical Society, January 4, included Drs. Ralph A. Kordenat on "The Relation of Anemia to Surgical Disease of the Gallbladder," and Charles F. Sawyer, "Factors Influencing Mortality in Appendicitis".

Dr. Robert B. Greenough, Boston, will deliver the eleventh Lewis Linn McArthur Lecture of the Frank Billings Foundation of the Institute of Medicine, February 22. His subject will be "Cancer Education in Medical Schools".

Prof. Ulrich Friedemann of the staff of the British National Research Council lectured at the Albert Merritt Billings Memorial Hospital on "Experimental Investigation on the Blood-Brain Barrier in Infectious Diseases".

Dr. Ludwig Fraenkel, professor and head of the department of gynecology and obstetrics, University of Breslau, Germany, gave an illustrated lecture before the Institute of Medicine of Chicago and the Chicago Gynecological Society, January 15; his subject was "Etiology, Diagnosis and Treatment of Parametritis".

Dr. Karl Meyer, medical superintendent of Cook County Hospital, has been named chief of the surgical staff of Henrotin Hospital; he will continue his duties at the county institution, with which he has been associated for twenty-one years.

Speakers before the Chicago Club for the Study of Arthritis, January 9, were Drs. Isadore Pilot on "Pathology of Gout" and Edwin P. Jordan, "Clinical Aspects and Relation to Chronic Arthritis". Dr. Emil G. Vrtiak gave a demonstration of slides and patients.

Dr. John D. Camp, Rochester, Minn., addressed the Peoria City Medical Society, January 22, on "Significant Roentgenologic Changes in the Spine," and January 15 the speaker was Dr. George E. Shambaugh Jr., Chicago, on "What Can Be Done for Sinus Disease?" Dr. George W. Parker was recently elected president of the society.

Speakers before the Chicago Society of Internal Medicine, January 28, were Dr. William S. Hoffman on "Relation of Serum Inorganic Sulfate to Renal Efficiency"; Dr. Franklin C. McLean and Albert Baird Hastings, Ph.D., "Clinical Observation of the Calcium Ion Concentration in the Blood," and Dr. Géza de Takáts, "Observations on Buerger's Disease".

At a meeting of the Chicago Council of Medical Women, January 4, Helen Koch, Ph.D., associate professor of child psychology, department of home economics, University of Chicago, spoke on "The Nursery School and the Mental and Physical Health of Young Children," and Ethel Kawin, psychologist of the laboratory schools of the University of Chicago, "Psychologic Problems Arising from Physical Illnesses in Children".

Sir Frederick Grant Banting, professor of medical research, University of Toronto Faculty of Medicine, approved the ordinance which permits unclaimed animals at the city pound to be used for experimentation, in a recent letter to the Illinois Society for the Protection of Medical Research. He stated that his research resulting in the discovery of insulin would have been impossible had he not been able to use dogs. The use of unclaimed dogs from the city pound for medical research was approved in a resolution adopted by the Chicago Heart Association at its annual meeting, January 8. The association declared itself opposed to the pending Nelson amendment, which would prohibit this use, and favored the continuance of the Arvey ordinance. Dr. Anton J. Carlson, professor of physiology, University of Chicago, was the principal speaker at the meeting.

News Notes

—Cook County Hospital cared for 70,427 patients during the fiscal year ended December 1, an increase of 153 over the number hospitalized in 1933. The daily average is 2,680 patients for 1934 as compared with 2,652 during 1933, according to the *Chicago Tribune*.

—For the first time in the history of Illinois, no cases of ophthalmia neonatorum were reported during the year ended July 1, 1934, according to the *Chicago Tribune*. The enactment of the law in 1933 providing for the use of silver nitrate solution in an infant's eyes immediately following its birth is credited with this result.

—The Beaumont Foundation, Cleveland, has made a grant to the University of Chicago for the support of research by Dr. Julius M. Rogoff on the suprarenal and other endocrine glands. Dr. Rogoff was formerly associate professor of experimental medicine at Western Reserve University School of Medicine, Cleveland.

—Dr. James F. Simonds, professor of pathology, Northwestern University Medical School, gave the first lecture in a series on cancer, sponsored by the cancer research committee of the Chicago Woman's Club. Dr. Simonds spoke, January 3, on "What Is Cancer? Its Biology and Pathology. Its Cause." Other speakers in the series include: Dr. Harry H. Oberhelman, assistant clinical professor of surgery, Rush Medical College, January 10, How is Cancer Recognized? Dr. Max Cutler, director of the tumor clinic at Michael Reese Hospital, January 17, Present Status of the Treatment of Cancer. Possibilities of Cure. Dr. Bowman C. Crowell, associate director, American College of Surgeons, January 24, Organized Movements for the Control of Cancer in the United States. Dr. Ludvig Hektoen, director, John McCormick Institute for Infectious Diseases, January 31, Cancer Research: What Has Been Accomplished? Lines of Research for the Future.

—Figures from the state health department for the first eleven months of 1934 indicate that the demand for preventive vaccines increased as compared with other years. Nearly twice as much typhoid vaccine was distributed as in any previous year, enough to immunize 63,548 persons as compared with a previous high of 38,425. Sufficient toxoid to immunize more than 200,000

children, nearly twice the amount given out in 1933, vaccine to protect 165,490 persons against smallpox, and enough silver nitrate solution to give prophylactic treatment against eye infection to 103,708 new-born babies were distributed. Antirabic vaccine to treat 1,713 persons bitten by dogs and sufficient material to give the Schick test to 65,785 persons were furnished by the department.

—In a recent report of accidents in Illinois for the four years 1930-1933 released by the state department of health, it was stated that accidents account for one in every seven deaths in some counties, while in others only one in twenty-five fatalities is attributed to accidents. For this period, accidents were responsible for 23,905 deaths in Illinois, and of these 8,938 were charged to motor vehicle mishaps. For all accidents the highest rates prevailed in Alexander, Union, Christian, Morgan and Lake counties, in the order named, where the number of deaths ranged from 140 to 120 per hundred thousand of population. The most favorable rates prevailed in Menard, Pratt, Jasper, Wayne and Moultrie counties, where the annual losses averaged from 36 to 40 per hundred thousand of population. For motor vehicles alone Lake County had the worst record by a wide margin, 60 deaths per hundred thousand annually from automobile mishaps. Next in order were Edgar, with a rate of 49; DeKalb, 43; Will, 42; McLean, 41; Grundy, 40, and Kankakee, 40. Calhoun County was the only one in which no death was attributed to motor vehicles. The state at large had an average loss of 77 per hundred thousand from all accidents for the four years.

—A feature of the program before the Chicago Gynecological Society, January 18, was the report of the maternal welfare committee: Drs. Charles C. Rentfro on "Incidence of Ectopic Pregnancy in the Reporting Hospitals of the City of Chicago" and William Harcourt Browne, "Ectopic Deaths in Chicago for 1935".

—At a meeting of the Chicago Neurological Society, January 17, W. R. Ingram, Ph.D., and Charles Fisher, Ph.D., spoke on "Relation of Hypothalamicohypophyseal System to Diabetes Insipidus"; Dr. George W. Hall and George V. LeRoy, "Narcolepsy Following Head Injuries," and Dr. Roland P. Mackay, "Simultaneous Occurrence of Ependymoblastoma and Osteoblastoma in the Fourth Ventricle".

—A tumor clinic was conducted at the Veterans' Administration Facility at Hines, January 14, under the direction of Dr. Max Cutler, head of the tumor clinic at Michael Reese Hospital, Chicago, and consultant in tumors to the facility. Following the presentation of cases, Aristid V. Grosse, Ph.D., professor of chemistry, University of Chicago, spoke on "Recent Advances in Radioactivity and Artificial Radioactivity". An evening program was presented by the following physicians: Charles M. Griffith, medical director, U. S. Veterans' Administration, Washington, D. C., The Cancer Problem in the Veterans' Administration. Max Cutler, Tumors of the Breast—Diagnosis and Treatment. Walter C. Alvarez, associate professor of medicine, University of Minnesota School of Medicine, Rochester, Cancer of the Digestive Tract. A new specially constructed two gram radium "bomb," valued at \$100,000, was displayed during the meeting.

Deaths

JOHN S. ALLEN, Keithsburg, Ill.; Hahnemann Medical College and Hospital, Chicago, 1877; for many years bank president and president of the board of education; aged 83; died, December 15, 1934.

CLEAVES BENNETT, Champaign, Ill.; College of Physicians and Surgeons of Chicago, 1896; a Fellow, A. M. A.; past president and secretary of the Champaign County Medical Society; formerly councilor of the eighth district of the Illinois State Medical Society; aged 64; on the staff of the Burnham City Hospital, where he died, December 22, 1934, of coronary thrombosis.

MILDRED JESSIE ROBERTS BROMAN, Evanston, Ill.; Rush Medical College, Chicago, 1916; aged 43; died, January 4, of pneumonia.

ROYAL OSCAR BROWN, Mount Morris, Ill.; Rush Medical College, Chicago, 1903; member of the Illinois State Medical Society; president of the Ogle County Medical Society; aged 60; died, December 15, 1934, in the Deaconess Hospital, Freeport, of coronary thrombosis.

ARTHUR CLARK DEAN, East St. Louis, Ill.; Jefferson Medical College of Philadelphia, 1917; a Fellow, A. M. A.; member of the South Dakota State Medical Association and the American Academy of Ophthalmology and Oto-Laryngology; fellow of the American College of Surgeons; served during the World War; aged 47; died, December 1, 1934, in St. Mary's Hospital.

BENJAMIN FELTENSTEIN, Chicago; College of Physicians and Surgeons of Chicago, 1895; aged 66; died, January 2, of coronary thrombosis and myocarditis.

EMMA HORTENSE GABEL, Chicago; Northwestern University Woman's Medical School, Chicago, 1900;

aged 73; was found dead, December 19, 1934, of chronic nephritis and arteriosclerotic myocarditis.

SAMUEL HARRIS GANSER, Chicago; Reliance Medical College, Chicago, 1911; aged 48; died, December 23, 1934, of arteriosclerotic myocarditis and pulmonary edema.

OLIVER M. HEILIG, Millcreek, Ill.; Barnes Medical College, Chicago, 1895; aged 65; died, November 23, 1934, of carcinoma.

J. T. TICHENOR, Waterford, Ky.; Louisville Medical College, 1893; aged 64; died, November 17, 1934, of heart disease.

CHARLES F. HUBBARD, Chicago; Hering Medical College, Chicago, 1899; member of the Illinois State Medical Society; aged 60; died, January 1, of chronic myocarditis.

HENRY W. JOHNSON, Port Byron, Ill.; Hahnemann Medical College of Philadelphia, 1882; aged 80; died, November 25, 1934, of coronary sclerosis.

GEORGE WILLIAM KIMBALL, Coulterville, Ill.; National Medical University, Chicago, 1896; also a dentist and druggist; formerly village president and president of the board of education; aged 66; died, November 19, 1934, of chronic interstitial nephritis.

CHARLES H. KISNER, Oblong, Ill.; Medical College of Indiana, Indianapolis, 1895; member of the Illinois State Medical Society; aged 69; died, November 17, 1934, of angina pectoris.

SYDNEY KUH, Chicago; Universität Heidelberg Medizinische Fakultät, Heidelberg, Baden, Germany, 1890; a Fellow, A. M. A.; clinical professor of psychiatry, Rush Medical College; member of the American Neurological Association; past president of the Chicago Neurological Society; senior attending neurologist to the Michael Reese Hospital, attending alienist and chief of staff, Cook County Psychopathic Hospital, consulting alienist Chicago Lying-in Hospital; formerly attending alienist to the Sceleth Hospital, now known as the House of Correction Hospital; aged 68, died, December 27, 1934, of coronary thrombosis.

EDWARD CRAIG LEDMAN, Chicago; Starling Medical College, Columbus, 1903; aged 60; died suddenly, December 3, 1934, of coronary thrombosis.

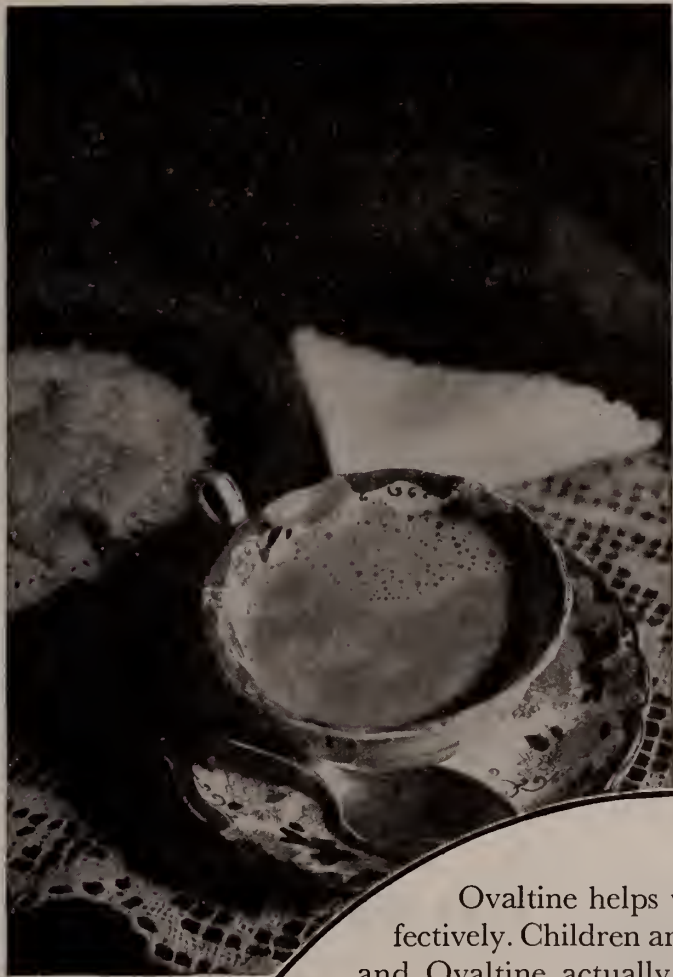
CHARLES AUSTIN LESTER, Peoria, Ill.; Hospital College of Medicine, Louisville, Ky., 1897; served during the World War; aged 60; died, December 9, 1934, in the Veterans' Administration Facility, Hines, of arteriosclerosis and valvular heart disease.

ROY WHITE MCCLINTOCK, Chicago; Harvey Medical College, Chicago, 1904; aged 57; died, January 2, of coronary occlusion.

MICHAEL THOMAS NAUGHTON, Chicago; College of Physicians and Surgeons of Chicago, 1894; aged 67; died, December 12, 1934, in the Veterans' Administration Facility, Hines, Ill., of nephritis.

FRANK M. TEBBETTS, Chicago; College of Physicians and Surgeons of Chicago, 1885; aged 70; died, December 21, 1934, of chronic myocarditis.

JOHN ALLEN WHIPPLE, Peoria, Ill.; National Medical College, Chicago, 1895; also a dentist and a lawyer; aged 79; died, November 22, 1934, in the Proctor Hospital of acute nephritis.



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CONTENTS:

Editorials (See Extended Table of Contents for Titles) 197

ORIGINAL ARTICLES

Medicine, Last and Next Fifty Years. *Wm. Allen Pusey, M. D., Chicago*..... 223

Medical Economics. *James G. Carr, M. D., Evanston, Ill.* 228

Unsaturated Fatty Acid (Vitamin F.) Deficiencies. *Mildred Oncken, M. S., Chicago*..... 236

Surgical Treatment of Retinal Detachment. *Samuel J. Meyer, M. D., Chicago*..... 239

Diphtheria Immunization in Private Practice. *King Grier Woodward, M. D., Rockford, Ill.* 244

Role of X-Ray in Industrial Hygiene. *Paul G. Dick, M. D., Chicago*..... 246

Treatment of Rheumatic Heart Diseases. *Clayton J. Lundy, M. D., Chicago*..... 251

Responsibility for Increasing Cancer Mortality. *E. G. C. Williams, M. D., Danville, Ill.*..... 255

Doctor George Francis Suker. *Beulah Cushman, M. D., Chicago* 259

Treatment of Chronic Typhoid Carriers. *Lars Gulbrandsen, M. D., Chicago*..... 262

Treatment of Ulcer of the Cornea. *C. F. Yerger, M. D., Chicago*..... 267

Body Temperature in Epileptics. *I. Radeff, M. D., Dixon, Ill.* 270

(Continued on Page 8)

Eighty-Fifth Annual Meeting at Rockford, May 21, 22, 23, 1935

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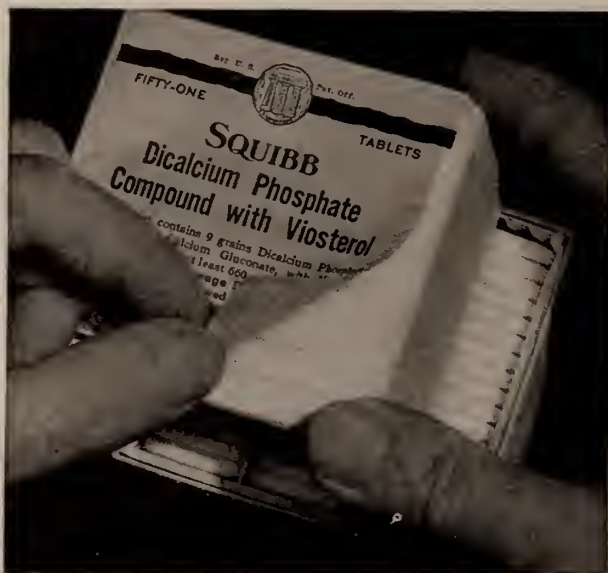
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Editorials

WHY SHOULD AMERICA PICK UP GERMANY'S "OLD MAN OF THE SEA?"

"Sindbad the Sailor" is a classic long since displaced in the up-to-date libraries of modern youth, but the average practicing physician remembers very well the dire tale of the seagoing Sindbad and the Old Man of the Sea.

No lad who shuddered fifty, forty, thirty, even twenty years ago over the dire plight of Sindbad and the wily old man can ever forget his horror over the poor sailor's stupidity in voluntarily assuming a tricky burden that grew daily heavier and daily refused to depart from his Samaritan's shoulders.

Social insurance in its many phases, but especially health insurance, is assuming in those countries that have borne it longest, every trait of poor Sindbad's devastating Old Man of the Sea. The thin, dying creature by the river who wanted only transport across, once safely settled on the youth's back, began to grow to enormous proportions and to torture fiendishly its human steed.

Such is the history of health insurance in those countries,—among others, England, Germany and Austria—where it has become firmly established.

Germany was the first to shoulder the parasite. At that time Germany was in the lead in things medical.

German clinics, German surgeons, German medicines, German laboratory research—there lay Mecca for the ambitious over fifty years ago. About that time social or health insurance made its descent upon the backs of the German people. Where we ask, is the once bright future of German medicine, today?

Behold it, a broken, emasculated thing struggling to travel beneath its politically imposed Old Man of the Sea. An Old Man of the Sea, too who is urging the United States to assume similar burdens of its own blood kin. That such persuasion comes from a political bureaucracy in no wise minimizes the danger. Social insur-

ance was the red ribbon on the glass in which Bismarck, Tammany gone Royalist, threw a drugged sop to the ever overburdened German workingman.

Health in the middle half of the nineteenth century was almost as much of a luxury as diamond necklaces. Fine medical care was kept for princes or for those who won the bounty of the great lords. Bismarck, half fox, half lion and a diplomat worthy of the Vatican, cast about for "bread and circuses" for the Teutonic poor, and found it in promise of free medical and surgical and obstetrical care, for which the beneficiaries if they wished might donate a few assessments. The German, and especially the socialistic German, is always long on the assessment or mutual payment idea, even if it is an assessment in name only.

Now Germany and her English cousins have discovered that economic schemes born in times of plenty are sadly out of joint in the lean years. Take some recent figures from the German front.

Professor Winslow of Yale University is authority for the statement, that for sickness insurance alone the German laborer must set aside something more than eight per cent. of his income (8.5% to be exact) and that the employer for the same purpose adds five per cent. more. Statistics in the United States claim that the average cost of medical care to the citizenry is something like three per cent. of the income. Undoubtedly Germany's other ten and five-tenths per cent. (10.5) is used for paying salaries and buying red tape for the tremendous political bureaucracy needed to handle the German social insurance system . . . the medical Old Man of the Sea. Not only cost but time lost from labor is excessive in Germany. Back in 1913 the German workman was accredited with 9.2 days of loss of labor for illness (with insurance) as against something over six per cent. time loss for the American worker. This ratio is practically the same in the United States today, *but in Germany it has increased to almost 17%.* The total number of days of sick benefits in Germany have increased two and one-third times since 1913; its cost of administration has almost trebled and it has become necessary to add a state subsidy as well as to decrease the time and amount of benefits in a ratio varying from 40 to 70%.

All of which, easily verified by authenticated statistics does not lay any ribbons on the brow

of the practicality of health insurance as the German nation bears this burden.

Aside from this economic standpoint to industry, to labor and the state, look at the economic viewpoint of the medical profession. The panel doctor gets the patient after he has had two lay bookings with his soul and his body practically eviscerated on record books of the gossipy laity. The average panel doctor sees from 50 to 200 patients daily at a compensation of something like eight or ten cents per patient. The state furnishes bandages, medicines and the like and the results are a great deal like the bureaucratic nabob who during the recent World war, in spite of the fact that although "America had only 85,000 horses," according to Collier's Weekly, "some imaginative individual placed orders for 945,000 saddles; 1,000,000 horse covers; 1,500,000 halters; 2,000,000 feed bags, and 2,800,000 halters."

That's the sort of waste that happens under any government controlled undertaking when the politicians are at the fore, and there is sugar to be sprinkled about for its constituency. The doctors and the taxpayers in Germany have found that out.

Health insurance, no matter how it is sold to a nation, does not protect, nor conserve, nor improve the health of a nation. But it has been proven to shine like a morning star to guide the greedy politician to a fat pocketbook and easy jobs for himself and his kin, lo, to the fourth generation.

Health insurance by any name is one of those windbag Santa Clauses that may have been practical on Mount Parnassus but have no place in the economics of any sane, rational, self-respecting, self-supporting people. It is an elusive chimera, swallowed gaily by those misguided individuals to whom the "government," "state subsidy" and the like are the pot of gold at the end of the rainbow which made of every dolt a genius and of every sluggard a man of wealth and consequence. "It is natural for man to indulge in the illusions of hope," quoth the great Patrick Henry. For the poor man, and for the burden shifting rich one, it is natural to have faith in such straw mannikins as health and social insurance.

That there should be some way of equalizing burdens of illness between the rich and the indigent without making the medical profession

the buffer state is to be admitted. But that way does not lie in so-called "health insurance" which merely adds more taxes to a nation now so crippled by terrible taxes that industry can scarcely function and the private individual on every side has his own private Old Man of the Sea dragging him down to inefficiency and despair.

The "Medical Annals of the District of Columbia" published recently excerpts from a brochure entitled "Will America Copy Germany's Mistakes," which was written and translated for the Pennsylvania Self-Insurers Association, Finance Building, Philadelphia. For this the author is Gustav Hartz, a seasoned and prominent labor leader in the land of Hitler and Nazis. Excerpts therefrom are as enlightening as they are appalling:

"It is not advisable to give ear to the biased experiences of advocates of social insurance who in many cases draw profits therefrom for there is no institution in the world that is so much extolled and the praise of which is so little justified as social insurance."

"To consider unemployment insurance an achievement of recent years, to call it the 'crown of social insurance' is a mistaken view for every social insurance is unemployment insurance whether the unemployment is due to illness, accident, early incapacity, old age or to being out of work."

"It may easily be proved that social insurance is not only caused by lack of means but even makes of it a social principle, aggravates it, spreads it, makes it permanent."

"Woe to the state which imagines that crises may be alleviated or stopped by the introduction or the existence of a comprehensive system of social insurance. . . Every economic crisis swallows up the best organized social insurance and consumes its funds at both ends—at the end of the diminishing premiums and at the end of the increasing benefits. In the time of her hardest social crisis, social insurance was Germany's greatest inner trouble."

"In Germany the most firmly convinced fanatics on social insurance—such people do still exist and in most cases they fare very well—are even now sure that unemployment insurance 'is not an insurance really.' In 1927 this 'Crown of social politics' was introduced, with fixed premiums and fixed benefits. Three or

four years later nothing was left and all that remains of unemployment insurance today is its name. Now the welfare principle is applied for the unemployed: insurance allowance without examining the necessity, namely, with legal rights for six weeks only. Juveniles and working women have no legal claim.

"The period for which benefits are made must of course be limited, as with a subscription of 6½ per cent of their wages not all unemployed can be supported. The greater the number of unemployed, the lower the limit must be set. At first the allowances were made for 26 weeks, now for 6 weeks. As in this crisis, unemployment frequently lasts for years, and most of the unemployed no longer receive any allowance. The unemployed insurance at present scarcely supports one-third of the army of unemployed, while the other part is supported by the welfare and the crisis centers. The same was the case before social politics had their 'crown' put on. These institutions draw their funds from the State revenues."

"It is not in the least different with the sick insurance. The unevenness in the business level, the seasons, holidays, a change of work, failing health and many other things contribute to bring about a noticeable change in morbidity. Since the sick insurance has been in effect, the average number of days of incapacity to work owing to ill-health has risen from 5½ to 28 days, although health in general has considerably improved. In the strict sense of the word the sick insurance is no insurance either. From a technical and mathematical standpoint it is also quite unsettled in view of the moral hazard noted above.

"This is clearly seen when considering that the individual insurance case, whether due to illness or unemployment, can be willfully caused or extended. Where is the borderline between illness and health, between mere indisposition and illness, between dread of getting ill and bluff? And if the insured person is really ill, where is the borderline between ability or disability to work? How can the duration of an illness be fixed?

"Illness is the most incalculable risk in existence.

"Even the doctor is mostly, or at least frequently, unable to diagnose correctly and to distinguish pretenders and hypochondriacs from

really sick people, or rather to tell whether a man is fit to work or not."

"Of all the risks in social insurance only old age, death, and number of dependents can be exactly established. These are, therefore, the only cases in which an unobjectional actuarial basis, and an unquestioned legal claim are possible. Everything else is hazy and uncontrollable."

"Dread of illness obsesses most people, and this has been pressed into a system 'illness made easy,' by which the will to be well is strangled. The doctor is consulted a dozen times where once would be sufficient—the insurance pays. The prescribing of medicine, bandages, etc., is desired. When they have been obtained they lie about until they are no longer fit to be used and must be thrown away—the insurance pays. Besides, it is nice to get something in return for the premiums paid year in and year out. Excessive 'overdoctoring' is the result, and fear of illness shakes the will for recovery—the best aid to health. Pretenders and hypochondriacs are bred and the use of medicine becomes excessive. The advertising of certain remedies and cures created a medicine craze. A few years ago it was ascertained that four times as much money was used for doctors' fees and medicines for 35,000,000 of people in insurance as for 30,000,000 of uninsured. This was stimulated, unthinkingly by a desire to get sick money. An actual run on the sick insurance allowance set in.

"At first sight it seems improbable and paradoxical that a desire to obtain sick money that scarcely amounts to half the sum of wages should arise. It appears impossible that someone should, unless compelled by illness, forfeit his wages to get an allowance of half the amount. Unfortunately life does not run a straight course between health, working ability, working possibilities on one hand, and illness and disability on the other, nor do people's minds and actions.

"In millions of cases, for example, when wages are being decreased, when work is scarce and work hours in consequence shortened, when there are fewer shifts, many holidays, work restrictions at certain seasons, outdoor work in frosty weather, 50 per cent. of the wages is welcome. One objects to the work he is given, another does not feel like working, a third's time is taken up by some family matter for which he would have to take leave of absence and forfeit his pay. In such cases the sick insurance

comes in handy. Besides this, there is also deceitful trickery. Fictitious contracts are made, doctors are induced to prescribe medicine, and instead of the medicine, toilet soap and scent, etc., are handed out by the pharmacies.

"How can this possibly be done, some ask. Those who consult doctors are supposed to be ill. That is all very well if the doctors were always able to detect whether the statements of the patients were correct. Often a diagnosis is impossible. He who would like to prove this should go to ten doctors, complain of headache, pain in the limbs, rheumatism. All ten will start a treatment for headache or rheumatism, without discovering that nothing whatever is the matter with the patient.

"Besides that, all doctors are glad to get new patients, for do they not mean their livelihood?

"Medical science has become a cheap article, and doctors have given up conscientious treatment. The genuine patient is neglected, is not given the necessary care.

"The greater the mass consultations, the lower are the doctors' fees. The amounts paid to panel doctors for each single case are deplorable. They are, therefore, compelled to resort to mass practice.

"The sick insurance unrolls the entire problem of the medical man's existence. Mass demand compelled a limitation in the use of medicines. Doctors must not prescribe what they consider good for the patient, they only being allowed to give remedies entered in a book of medical regulations for insurance purposes.

"The insured workman becomes a second class patient."

"The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat.

"This system, together with the rest of the bureaucratic apparatus, has wedged itself between doctor and patient, completely destroying the patient's confidence in his physician, which greatly retards all recovery."

"In the beginning nobody thought of insuring all workmen, merely needy ones. But soon everybody was 'needy.' Today, with members of families included, two-thirds of the nation are compelled to be insured."

"Liberty and progress are possible only where

the will to get on and to accumulate capital is not hindered, but furthered."

"During the last few years the administration costs amounted to 400 million marks annually. The costs cannot be called too high and cannot possibly be materially reduced.

"However, the whole matter gets another aspect in view of the fact that these expenses are covered by workmen's premiums and are deducted year by year from the money intended for these men's support. In one worker's generation—say from the age of 20 to 60, or 40 years—it means the gigantic sum of 16,000,000,000 marks, which, therefore, is lost from the funds originally intended for sick, unemployment and old age insurances.

"An army of about 70,000 officials is required to handle part of the wages of the workers under compulsory administration, for what else is social insurance?"

"Premiums started on a modest basis. The first were 1½ per cent. for the employee and ¾ per cent. for the employer. Today, the entire premium averages almost one-fifth of the amount of the wages and for minors it is nearly 30 per cent. The involved way in which the contributions are divided between employer and employee is omitted here, as an alteration is pending. It is expected that employer and employee will in future bear equal share, about 10 per cent. each. Is it to be expected that an employer can afford to make an employee a present of 10 per cent. in addition to his wages?"

"The only part of the wages he might be able to save in order to build up a capital is taken from him, thus preventing him having any resources of his own. Whether he wants to or not, he is doomed forever to remain a proletarian. It is social insurance, therefore, that makes needy people, in order to give them after they have become needy, very inadequate support. Social insurance originally was established to help those in distress. Now these are poor of its creation."

TEN CARDINAL PRINCIPLES FOR MEDICAL MEN

At the June meeting of the American Medical Association at Cleveland the House of Delegates went on record in favor of the following set of principles to guide the medical profession in its

efforts to meet the problems of medical service under the present menacing conditions:

First: All features of medical service in any method of medical practice should be under the control of the medical profession. No other body or individual is legally or educationally equipped to exercise such control.

Second: No third party must be permitted to come between the patient and his physician in any medical relation. All responsibility for the character of medical service must be borne by the profession.

Third: Patients must have absolute freedom to choose a legally qualified Doctor of Medicine who will serve them from among all those qualified to practice and who are willing to give service.

Fourth: The method of giving the service must retain a permanent, confidential relation between the patient and a "family physician." This relation must be the fundamental and dominating feature of any system.

Fifth: All medical phases of all institutions involved in the medical service should be under professional control, it being understood that hospital service and medical service should be considered separately. These institutions are but expansions of the equipment of the physician. He is the only one whom the laws of all nations recognize as competent to use them in the delivery of service. The medical profession alone can determine the adequacy and character of such institutions. Their value depends on their operation according to medical standards.

Sixth: However, the cost of medical service may be distributed, the immediate cost should be borne by the patient, if able to pay, at the time the service is rendered.

Seventh: Medical service must have no connection with any cash benefits.

Eighth: Any form of medical service should include within its scope all qualified physicians of the locality covered by its operation who wish to give service under the conditions established.

Ninth: Systems for the relief of low income classes should be limited strictly to those below the "comfort level" standard of incomes.

Tenth: There should be no restrictions by non-medical groups on treatment or prescribing unless formulated and enforced by the organized medical profession.

THE 1935 ANNUAL MEETING

The preliminary program and information concerning the 1935 Annual Meeting will appear in the April number of the ILLINOIS MEDICAL JOURNAL. The plans are well under way for a big meeting in Rockford on May 21, 22 and 23.

The Pediatricians will conduct their own meeting on Tuesday Morning, May 21, and their excellent program will be available for publication at an early date. The Secretaries' Conference will begin at 9:00 A. M. Tuesday, May 21, and an excellent program which will appeal to all physicians is being arranged.

The General Opening Meeting will be held at 1:00 P. M. Tuesday, and will be followed by the Oration in Medicine, to be delivered by Dr. James S. McLester, President-elect of the American Medical Association, Birmingham, Alabama. Dr. McLester is one of the outstanding Internists of the South, and will have an interesting paper.

The Oration in Surgery will be delivered by Dr. Martin Nordland of Minneapolis, and his subject will be announced in the preliminary program. Dr. Nordland who is an associate in Surgery at the University of Minnesota, and President of the Minneapolis Surgical Society, is a forceful speaker who can present his subject in a most pleasing manner.

The President's Dinner will be held at the Hotel Faust, Rockford, on Wednesday evening, May 22. The Committee on Arrangements and the special President's Dinner Committee are planning to make this an outstanding feature of the Annual Meeting.

All sessions during the Annual Meeting will be held in the Faust Hotel, and both commercial and scientific exhibits will also be demonstrated there, an ideal arrangement. The Committee on Scientific Exhibits is arranging for some highly interesting exhibits under three general classifications, and hope to have the best exhibit of this nature that has been arranged to this date. Fracture demonstrations will be arranged for the 1935 Meeting, similar to those given last year in Springfield. Under the supervision of Dr. Philip H. Kreuzer, it is proposed to demonstrate the modern treatment of the common types of fractures, using from 15 to 18 members of the Society who are especially interested in fracture work.

Owing to the fact that a large attendance is expected for the annual meeting, it is advisable for all members planning to attend it, to make their hotel reservations as early as possible. This can be done by writing the Committee on Arrangements at Rockford.

Complete details concerning the meeting will appear in the April ILLINOIS MEDICAL JOURNAL.

THE SPECIAL SESSION OF THE HOUSE OF DELEGATES OF THE AMERICAN MEDICAL ASSOCIATION

The House of Delegates of the American Medical Association held an emergency meeting in Chicago February 15-16, 1935.

This special or emergency meeting was called at the suggestion of the Board of Trustees for the consideration of social and economic policies of the association, as related to pending and proposed legislation, to sickness insurance and to other matters submitted by the Board of Trustees as follows:

QUESTIONS FOR THE HOUSE OF DELEGATES

Dr. Upham also presented six questions suggested for discussion by the House of Delegates, as follows:

1. Shall or shall not the House of Delegates again declare its opposition to all forms of state medicine, including any form of medical treatment provided, conducted, controlled or subsidized by the federal or by any state government, excepting such service as is provided by the Army, Navy or Public Health Service and such as is necessitated by the control of communicable disease or for the treatment of mental disease or of the indigent sick, and excepting also all such other service as may be approved, administered or conducted by local county medical societies and not disapproved by the state medical societies of which they are component parts?
2. What is the attitude of the House of Delegates toward the eleven principles proposed by the Committee on Economic Security as fundamental to any system of sickness insurance to be established by the federal government?
3. Shall or shall not the House of Delegates of the American Medical Association reaffirm its opposition to the principle of federal subsidies to individual states in relationship to the provision of medical service?
4. Will the House of Delegates express its position relative to that provision of the Wagner bill which places the control of medical affairs in the Department of Labor under a non-medical special board?
5. What attitude shall the House of Delegates take relative to the proposed sickness insurance legislation in the individual states as represented by the Epstein bill of the American Association for Social Security?
6. How may the American Medical Association ini-

tiate plans for still further improving the quality of medical service and for obtaining better distribution of medical service for all the people?

Delegates from the respective states engaged freely in the discussion of medical economic problems. It was positively apparent at all times that the medical profession is not ready to yield its position in regard to one hundred per cent. opposition to all forms of social legislation involving schemes for compulsory health insurance and other schemes for general socialization of everything and everybody.

The following unanimous report of the reference committee, special session house of delegates, expresses the sentiments of the delegates present at the meeting:

REPORT OF THE SPECIAL REFERENCE COMMITTEE

Your reference committee, believing that regimentation of the medical profession and lay control of medical practice will be fatal to medical progress and inevitably lower the quality of medical service now available to the American people, condemns unreservedly all propaganda, legislation or political manipulation leading to these ends.

Your reference committee has given careful consideration to the record by the Board of Trustees of the previous actions of this House of Delegates concerning sickness insurance and organized medical care and to the account of the measures taken by the Board of Trustees and the officials of the Association to present this point of view to the government and to the people.

The American Medical Association, embracing in its membership some 100,000 of the physicians of the United States, is by far the largest medical organization in this country. The House of Delegates would point out that the American Medical Association is the only medical organization open to all reputable physicians and established on truly democratic principles, and that this House of Delegates, as constituted, is the only body truly representative of the medical profession.

The House of Delegates commends the Board of Trustees and the officers of the Association for their efforts in presenting correctly, maintaining and promoting the policies and principles, heretofore established by this body.

The primary considerations of the physicians constituting the American Medical Association are the welfare of the people, the preservation of their health and their care in sickness, the advancement of medical science, the improvement of medical care, and the provision of adequate medical service to all the people. These physicians are the only body in the United States qualified by experience and training to guide and suitably control plans for the provision of medical care. The fact that the quality of medical service to the people of the United States today is better than that of any other country in the world is evidence of the extent to

which the American medical profession has fulfilled its obligations.

The House of Delegates of the American Medical Association reaffirms its opposition to all forms of compulsory sickness insurance whether administered by the federal government, the governments of the individual states or by any individual industry, community or similar body. It reaffirms, also, its encouragement to local medical organizations to establish plans for the provision of adequate medical service for all of the people, adjusted to present economic conditions, by voluntary budgeting to meet the costs of illness.

The medical profession has given of its utmost to the American people, not only in this but in every previous emergency. It has never required compulsion but has always volunteered its services in anticipation of their need.

The Committee on Economic Security, appointed by the President of the United States, presented in a preliminary report to Congress on January 17 eleven principles which that committee considered fundamental to a proposed plan of compulsory health insurance. The House of Delegates is glad to recognize that some of the fundamental considerations for an adequate, reliable and safe medical service established by the medical profession through years of experience in medical practice are found by the committee to be essential to its own plans.

However, so many inconsistencies and incompatibilities are apparent in the report of the President's Committee on Economic Security thus far presented that many more facts and details are necessary for a proper consideration.

The House of Delegates recognizes the necessity under conditions of emergency for federal aid in meeting basic needs of the indigent; it deprecates, however, any provision whereby federal subsidies for medical services are administered and controlled by a lay bureau. While the desirability of adequate medical service for crippled children and for the preservation of child and maternal health is beyond question, the House of Delegates deplores and protests those sections of the Wagner bill which place in the Children's Bureau of the Department of Labor the responsibility for the administration of funds for these purposes.

The House of Delegates condemns as pernicious that section of the Wagner bill which creates a social insurance board without specification of the character of its personnel to administer functions essentially medical in character and demanding technical knowledge not available to those without medical training.

The so-called Epstein bill, proposed by the American Association for Social Security, now being promoted with propaganda in the individual states, is a vicious, deceptive, dangerous and demoralizing measure. An analysis of this proposed law has been published by the American Medical Association. It introduces such hazardous principles as multiple taxation, inordinate costs, extravagant administration and an inevitable trend toward social and financial bankruptcy.

The committee has studied this matter from a broad standpoint, considering many plans submitted by the

Bureau of Medical Economics as well as those conveyed in resolutions from the floor of the House of Delegates. It reiterates the fact that there is no model plan which is a cure-all for the social ills any more than there is a panacea for the physical ills that affect mankind. There are now more than 150 plans for medical service undergoing study and trial in various communities in the United States. Your Bureau of Medical Economics has studied these plans and is now ready and willing to advise medical societies in the creation and operation of such plans. The plans developed by the Bureau of Medical Economics will serve the people of the community in the prevention of disease, the maintenance of health and with curative care in illness. They must at the same time meet apparent economic factors and protect the public welfare by safeguarding to the medical profession the functions of control of medical standards and the continued advancement of medical educational requirements. They must not destroy that initiative which is vital to the highest type of medical service.

In the establishment of all such plans, county medical societies must be guided by the ten fundamental principles adopted by this House of Delegates at the annual session in June, 1934. The House of Delegates would again emphasize particularly the necessity for separate provision for hospital facilities and the physician's services. Payment for medical service, whether by prepayment plans, instalment purchase or so-called voluntary hospital insurance plans, must hold, as absolutely distinct, remuneration for hospital care on the one hand and the individual, personal, scientific ministrations of the physician on the other.

Your reference committee suggests that the Board of Trustees request the Bureau of Medical Economics to study further the plans now existing and such as may develop, with special reference to the way in which they meet the needs of their communities, to the costs of operation, to the quality of service rendered, to the effects of such service on the medical profession and to the applicability to rural, village, urban and industrial population, and to develop for presentation at the meeting of the American Medical Association in June model skeleton plans adapted to the needs of populations of various types.

DOCTORS SHOULD CONTROL ALL FORMS OF MEDICAL SERVICE

Dr. Charles B. Reed, of Illinois, at the special meeting of the A. M. A. House of Delegates in February, introduced the following resolution which was unanimously adopted:

WHEREAS, In many communities throughout the country various lay organizations are sponsoring the conduct of diagnostic clinics for such conditions as physical handicapped children, infant feeding problems, etc.; and

WHEREAS, The actual clinical work is performed by members of organized medicine; and

WHEREAS, Full credit for the results if favorable is often given to the sponsors instead of to the clinicians; and

WHEREAS, It has been published throughout the country that children with various handicaps are neglected by the medical profession; therefore, be it

Resolved, By the House of Delegates in special session assembled that all clinics, child welfare groups of whatever nature and other social or charitable organizations which have to do with medical problems be regarded as a part and attribute of medical practice; and be it further

Resolved, That the constituent state and county societies should organize, conduct and control all diagnostic and welfare clinics of whatever nature soever which are deemed essential to the conservation of health and for which the medical arm is responsible.

SOCIALIZE MEDICINE—THEN GENERAL SOCIALIZATION WILL BE UNDER WAY

Dr. Wm. H. Mayer, of Pittsburgh, chairman of the committee on Public Relations of the Medical Society of the State of Pennsylvania, has sent the following release to over two thousand industries in that state:

"There are concerted efforts on foot to socialize the practice of medicine. Should these succeed, general socialization will be under way.

"The Columbia Broadcasting System is broadcasting each week, on Monday evening, over sixty-one stations, discussions dealing with socialization of medicine, which are predominantly propaganda in favor of this socializing effort.

"The American Association for Social Security, Inc., Abraham Epstein of New York City, executive secretary, has prepared a proposed health insurance bill for introduction into the 1935 state legislatures.

"This proposed law shall establish a state health insurance bureau and commission and build up a state health insurance fund from three sources: 1.5 per cent. employers' payrolls paid by the employer; 3 per cent. of the wages of employes (deducted by employers and transmitted to the state fund), and 1.5 per cent. of the total payroll of employers appropriated from tax funds.

"Their model bill also proposes to combine cash benefits with medical, hospital and dental care. This means that the employer will pay his large share directly and bear his burden as an already heavy taxpayer.

"The business interests of Europe have already suffered as a result of this scheme, which in England in 1933 cost through parliamentary grants \$24,000,000 and in Germany gave clerical employment to 34,300 persons.

"Business men and industrialists should not willingly promote socialization of business and industry in America. If the practice of medicine is socialized, the entering legislative wedge will have been gained.

"Will you not therefore first urge your legislative representatives to discourage the disrupting activities of the 'American Association for Social Security' which is promoting these socialization schemes through active lobbies; second, use your influence with the Columbia Broadcasting Company to prevent the propaganda for the creation of an expensive bureaucracy ultimately destructive of good medical service.

"The Medical Society of the State of Pennsylvania through its Public Relations Committee will be glad to correspond with you further."

EDUCATIONAL COMMITTEE HEALTH RADIO TALKS SHOULD CONFORM TO THE FOLLOWING POLICIES

1. Treatment is not to be discussed over the radio by any of the agents of the Educational Committee of the Illinois State Medical Society.

2. Personal advertising must be avoided.

3. All radio papers are to be submitted to the office being broadcast. No article is to be given over the radio until it has had the approval of the Educational Committee.

4. Radio papers must be read exactly as approved by the Committee. There are to be no changes or additions made when the article is read over the radio.

The Educational Committee of the Illinois State Medical Society wishes to conform with the policies of the House of Delegates of the State Society as well as with those of the House of Delegates of the American Medical Association as stated in the Journal of the Association for June 11, 1927, as follows:

"The House of Delegates concluded that in-

terviews or articles of an educational nature on medical or health subjects, intended for the lay press or lay audiences should give expression to the consensus of opinion of the medical profession rather than to personal views which may be in conflict therewith, and that articles should appear preferably under the auspices of the American Medical Association or one of its component societies or constituent associations.

"—discussions of new discoveries, of proprietary products, and of special notions may well be confined to medical periodicals, which constitute an open forum for determining the actual status of things in dispute."

To succeed in a radio talk the subject must be made to interest the audience. Repeat your subject from time to time.

Avoid long or involved sentences or long words.

MEDICAL PRACTICE FOR SALE

The lucrative practice of the late Dr. W. T. Short of Stonington, Illinois, offers a splendid opportunity for some first-class M. D. who wishes to get busy from the very beginning. Please address Mrs. W. T. Short, Stonington, Illinois.

TREATMENT OF PERFORATED "PEPTIC" ULCERS

Hugh H. Trout, Roanoke, Va. (*Journal A. M. A.*, Jan. 5, 1935), discusses the acute perforations that demand immediate operation. The deductions reached are based largely on personal experience in the treatment of forty-one such cases. This experience has been greatly influenced, however, by numerous visits to other hospitals, conversations with other surgeons, and a careful review of the literature. Of course it is generally conceded, even by the most radical adherents of the nonsurgically inclined of medical men, that surgery offers the best hope of recovery. Therefore the author confines his discussion to surgical intervention in this condition, considered under the following three headings: (1) Drainage after closure of the perforation, (2) advisability of immediate gastro-enterostomy following closure of perforation and (3) treatment of perforations on the posterior wall of the stomach and duodenum associated with hemorrhage, from which he draws the following conclusions: 1. Drainage of the peritoneal cavity should be avoided if possible. 2. Continuous gastric suction through a nasal tube has decreased the indications for an immediate gastro-enterostomy. 3. Partial gastric resection in the operation of choice in those cases of posterior perforations of the stomach or duodenum which are associated with massive hemorrhage.

SUGGESTIONS ON PREPARING COPY

WRITING A CRAFT AND AN ART

"It is a craft when practiced for the uses of daily life by persons of ordinary endowments; it is transformed into an art when to excellence of craftsmanship is added the formative principle that differentiates an art from a craft.

"It might be supposed that anyone who wished to write would know what he wished to write about. But many merely wish to write. To recommend that such a person choose a subject which he knows well is not so superfluous as it seems."

A Manual for Writers: Manley and Powers

"Accurate use of a large vocabulary of words clear and sharp in their meaning marks the scholarly writer."

The Writing of Medical Papers: Mellish

A medical editor welcomes copy on new discoveries or novel applications of old principles when presented in attractive form. It therefore behooves the writer to limit his subject closely, to take time to condense and polish the text, verify the statistics, illustrations and tabular matter and present his ideas in a form to appeal to the reader.

Medical literature is accumulating at such an enormous rate that it is comparable to the astronomer's theory of the "Expanding Universe." To add to the mass, unless the contribution is novel and well presented, is a liability rather than an asset.

Following the publication of "Observations on Copy" last year there was some improvement in the papers prepared for the annual meeting and the suggestions are revised and repeated at this time in the hope that they may be useful in the preparation of papers for the forthcoming meeting.

Much time, labor and expense on the part of writers, editors, printers and others can be saved by compliance with these suggestions.

Titles of articles should be brief and explicit. Otherwise they cannot be readily located in the Index Medicus and the author loses the advantage of that excellent publicity.

Paper and Style: All copy should be submitted on standard size white paper, 8½x11 inches and *double spaced throughout*. Page to be blank 1½ inch top and left side; inch on bot-

tom and right side. *Copy to be original.* (Author keeps a carbon copy.)

Pages Numbered: All pages including tables, legends and bibliography, to be numbered consecutively. Also all illustrations to be numbered and marked "top" and have author's name on back.

Title, author: Title of paper, author's name and city address should appear in order stated at top of first page; author's street address at end of article.

The contents of paper should be in the best possible style and turned over to the official reporter with the distinct understanding that proof will be submitted to authors for the correction of *typographical errors only*. If changes from copy are desired they will be made at *author's expense*.

Spelling: Spelling as in Stedman's Medical Dictionary is considered standard. He does not recognize such barbarisms as oedema which he calls "variant," nor have we adopted the short form of though, thorough, etc., even if some lexicographers have.

Abbreviations not in dictionaries should not be used except in tables with explanatory footnotes.

Words Often Misspelled

abscess	inflamed
anemia	inflammation
anastomosis	inoculation
anesthesia	myxedema
benefited	per cent. (2 words with period)
bactericidal	preventive
calcareous	septicemia
carcinoma	smallpox
caseous	syphilis
desiccate	thorough
diphtheria	though
dyspnea	through
edema	tonsillitis
esophagus	tryparsamide
goiter	x-ray
hemorrhage	
Hippocratic	

Numbers under 10 to be spelled out; over 10, use Arabic numerals.

Compound Words: Many medical terms formerly written separately or hyphenated are now run together as in German, which has a certain scientific advantage however cacophonous the sound. Recent editions of both Dorland and Stedman have pharyngomaxillary and sternocleidomastoid which were formerly hyphenated.

Stedman writes all gastro compounds without hyphens. Funk & Wagnall's Standard uses hyphens, indicating that medical practice follows the German style more closely.

Capitalization: No capitals unless proper name or beginning a sentence: thus doctor, physician, dentist, pediatrician.

Names of diseases and medicines not capitalized unless named for a *person*.

X-ray not capitalized unless beginning a sentence.

Titles of articles when referred to in the *article* are not capitalized, or if capitalized should be in quotes.

Illustrations: All cuts required for illustration are furnished at *author's expense*. Clear photographs and wash drawings can be reproduced in halftone cuts; line drawings in zinc etchings. Minimum size halftones cost about \$4 each; minimum etchings about \$3. *Negatives* of radiograms, either glass or film, are not acceptable; *prints* should be submitted.

Bibliography: References to literature should appear in numerical order in the text and the bibliography should be collected at end of article with the same numbered references. It is rarely necessary to write names of medical journals in full. (J. A. M. A.)

Since 1927 the Index Medicus has maintained a uniform standard of references which answers every requirement of brevity, uniformity and accuracy that makes it the supreme arbiter in this field. This system was directed to our attention by Mr. Alfred L. Robert, medical librarian of Columbia University, and we have redacted copy recently submitted to the Journal in accordance with this plan. This was facilitated by the cooperation of the staff of the Crerar library.

If authors will follow this system from this date it will save extra work for all concerned.

The example quoted by Mr. Robert was taken from February (1934) ILLINOIS MEDICAL JOURNAL as follows:

"Ford, H. L., Deep neck infection—surgical approach, Illinois M. J. 65: 117-128, 1934."

It will be noted that this contains the author's name and initials, title of paper, name of journal abbreviated, volume number in *Arabic numerals*, pages, *first and last*, and year.

The data include everything necessary to locate the article in a library with nothing superfluous.

Similarly *quotations from books* should contain the author's name, title of book, place of publication, publisher's name, year and pages.

Arabic numerals are specified instead of Roman as they are more familiar and less liable to error in copying.

Phony Locutions: "He operated six cases; others were unoperated." It seems incredible that any physician or surgeon could be guilty of such a sentence, but unfortunately it is not so uncommon. Others "operate" patients. Why not operate "in" the case or "on" the patient.

The following quotation from Stedman's Medical Dictionary may clarify this usage:

"*Case* (kās) (L. casus, an occurrence). An instance of disease with its attending circumstances. The patient is not the case; the *patient* dies or recovers, the *case* terminates fatally or ends in recovery; the surgeon operates *in* a case, but operates *on* the patient."

Smith, Brown etc. Why not Smith, Brown et al.?

"Cases in whom" should be cases in which, but "patient in whom" is correct.

We again quote the excellent summary of language to avoid from the Journal of the Medical Association of Georgia.

REPREHENSIBLE MEDICAL ENGLISH

TWELVE VALUABLE POINTS IN THE LANGUAGE OF MEDICINE

1. "Case" must not be used for "patient," nor "cure" for "treatment."
2. "Tubercular" means "nodular"; "tuberculous" means "infected with the bacillus of tuberculosis."
3. "Cystoscope" is a noun and must not be used as any other part of speech.
4. It is possible to "operate a cotton-gin," *but it is not possible to "operate a patient"—nor his appendix.*
5. "Acute appendicitis" is common, but an appendix cannot be "acute."
6. "Acute abdomen" is beyond the pale.
7. "Pathology" means the "science of disease"; it is therefore absurd to speak of "pathology in the right lung."
8. "Positive serology" is the worst type of jargon; apparently "positive Wassermann reaction" is usually meant.
9. "Specific" and "luetetic" are convenient to obscure meaning from patients' relatives, but "syphilitic" is better in writing for the medical profession.
10. It is incorrect to say the patient had "no temperature." One may say that there was "no elevation of temperature," but it is shorter to say there was "no fever."
11. "Shot" is perhaps the most abused and overworked word in medical literature. Shot is of lead.
12. Bad spelling is unpardonable, so a good dictionary is indispensable.

—*Jour. Med. Assn. of Ga.*

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

L. E. Day, M. D.
I. H. Neece, M. D.
E. H. Ochsner, M. D.
E. H. Weld, M. D.

Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

C. S. Skaggs, M. D.
R. K. Packard, M. D.
H. M. Camp, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

The readers will have noted an enlargement in this section the past two months. This was in accord with the instructions of the Council of the Illinois State Medical Society, in view of the increased importance of this subject at this time. The number of contributors to the column has been increased and we shall endeavor to cover the subject more fully in the future. This month we have a new heading for the column. This is in accord with that of many of the state Journals and was recommended at the last meeting of the Council. Kindly let us know how you like the new heading and also tell us whether the column is giving you the desired information at this time.

On February 14, 1935, a meeting of the eleventh Councilor district, embracing Du Page, Will, Grundy, Kankakee, Ford and Iroquois Counties was held at Kankakee. Dr. Harold Camp of Monmouth, Secretary of the Illinois State Medical Society, and Dr. John Neal of Springfield, Chairman of the Legislative Committee of the Illinois State Medical Society were the principal speakers. They talked on the present governmental trends in regard to the future practice of medicine. Both had constructive proposals to offer to answer and combat the present arguments being advanced for these changes. The attention and interest of the 75 physicians present from all over the district demonstrated that the doctors are desirous to obtain all available information on this subject. It is hoped that similar meetings will be held at different points over the state in the near future to give the doctors throughout the state the opportunity to hear these and other men who are giving special attention to this subject.

The exact nature of the subject of Medical Economics is of course debatable. Surely, it has changed greatly in the past year or two. Prior to that time it was supposed to include principally a study of the finances of the physicians. It had only to do with the material things of

life. It has now come to be recognized as concerned with the communal problems of economic life. Recently, it was defined in "An Introduction to Medical Economics," prepared by the Bureau of Medical Economics, American Medical Association, "as a branch of Economics which deals with the production, distribution and consumption of the values involved in Medical services."

Thus it comes to be a scrutinizing study of all possible agencies for altering the community needs in regard to medicine. The various new ideas advanced to reform and regulate the life and activities of medical men in regard to their contacts with society must be carefully scrutinized and studied by those interested in medical economics so that a definite decision as to their advantages and disadvantages can be arrived at and advice be given to our fellow practitioners. This Committee has attempted in the past year to extend its work to include just such activities as listed above. We have given particular attention to the subject of Group Hospitalization, about which there was an article in the last issue of this Journal. Surely the final word has not been spoken on this subject. It is to be hoped that the plan will be tried out in cities of different sizes under the restrictions laid down by the Council of the Illinois State Medical Society at its last meeting and in another year we will have the benefit of their experiences in arriving at the final decision as to whether the plan should be made more general or completely abandoned. The more the plan is studied, the more one becomes convinced that many excellent ideas are contained therein and if the danger of expansion to include professional fees and thus drift further toward State Medicine could be definitely avoided, it seems that as long as it remains under the direct control of the medical profession, it probably has a place in our future medical plans. Surely it will appeal to the laity, to whom the fear of a large

hospital bill has become almost a panic. That the hospitals are for it is apparent by the way the hospital executives are pushing it. We must all keep an open mind on the subject, and study the plan from all angles.

The recent meeting of the House of Delegates of the American Medical Association in Chicago, February 16 and 17, was well attended and the entire time of the delegates was given to consideration of the threatened legislation as it affected the medical profession. It was the opinion of practically every body present that the House should again go on record as opposing state medicine in any form, should disprove the recommendations of the Committee on Economic Security, so far as medical care is concerned; oppose again all Federal subsidies of medical care and its designated functions pertaining to medical care; and also oppose the Epstein Bill, to be introduced in many state legislatures. This action is in line with the opinion of all thinking medical men and is another evidence of the fact that the A. M. A. is alive to the problem and dangers threatening the very life of the practice of medicine. A special committee was appointed to study the question, "How may we improve medical care for all individuals according to their individual economic condition?" This committee, largely made up of the Bureau of Medical Economics, is to report back to the House in June during the annual meeting. Undoubtedly, there will be a more detailed report of this meeting in both this Journal and the J. A. M. A., and every physician should take the time to read the entire report of the session. It will be educational and at the same time encouraging to know that the best minds of the profession are studying the subject and preparing to refute the arguments advanced in its favor.

Several members of the Illinois State Medical Society, including the President, Secretary, and Chairman of the Legislative Committee, Dr. Neal, are planning to attend the Northwestern Conference on Medical Economics at St. Paul the latter part of this month. Past President Kreuscher, is the presiding officer of this conference and he has arranged a most interesting meeting and we hope to be able to report some of the conclusions arrived at in the next issue of this Journal.

We hope that this coming month a series of

meetings of the different Councilor Districts of the state will be held to discuss the current economic problems. If one is held in your part of the state, let nothing keep you from attending the same. Leading men of the state will make the addresses and attempt to answer any of your questions. You will leave the meeting with a better grasp of the entire problem than you ever had before and more able to answer questions propounded to you, thus helping to influence public opinion in favor of the present manner and method of practicing medicine as opposed to the radical ideas of State Medicine.

E. S. HAMILTON,

Chairman of Committee on Medical
Economics of Illinois State Medical Society.

REALISM AND HEALTH INSURANCE

Occasionally, and particularly during periods of economic distress, great waves of popular sentiment in favor of some sort of change in social practices sweep over nations and even across the entire civilized world. While some change is often needed under such circumstances, these movements, gathering momentum on a single issue, fire the public imagination to the point where good and bad alike in the social structure are swept away. Witness the Crusades that began in the eleventh century and terminated three centuries later. Born of religious fervor, this movement held out pilgrimages to the Holy Land as a short cut to heaven. The wastage of human life and treasure was gigantic. Homes were broken up, Kingdoms destroyed, fortunes lost, and to no avail. Nothing in human experience of that period escaped the direful influence of the Crusades.

Now we are in the midst of a popular wave for economic reform. Doubtless some change is necessary. The movement, however, has assumed already many preposterous, impracticable and even fantastic features which do not wither for lack of popular support. The Townsend old age pension scheme, for example, which would dole out \$200 monthly to every person over 60 years old is said to have many millions of signed adherents. Numerous States have before their legislative bodies for consideration old age pension bills scarcely less ludicrous in the light of practicable possibility.

Among many other proposed social reforms is the agitation for compulsory health insurance.

This movement is held out as a short cut to health. Let us examine the practicable possibilities to see whether or not any significant benefits may be anticipated under such a scheme on the one hand, and whether the costs would justify a change from the present system of providing medical care on the other.

To be practicable a health insurance scheme must give reasonable promise that it will actually cause a large proportion of those concerned to take advantage of medical care, both curative and preventive. Secondly, it must provide reason to believe that health among the insured will be better than that which now prevails. Thirdly, it must offer valid evidence that benefits will outweigh the costs. These points will now be considered in the order enumerated.

Will health insurance lead people to take advantage of medical service? The Metropolitan Life Insurance Company which has a dollar and cents interest in health matters, took a census of 6,245 children in the age group of six months to fifteen years, in order to find out how many were protected against diphtheria and the reasons for non-immunization when this was lacking. All of these children lived in communities where diphtheria prevention campaigns had been conducted so that the subject was well advertised. Of the 4,749 unprotected children the parents of one-half had simply neglected the matter. They knew that children could be immunized against diphtheria. They knew that this practice was sound, economical and practicable. They believed in it. Still they had neglected taking advantage of the medical service which would have insured their children against a dangerous, expensive and often fatal disease. The parents of one-fifth (20.5 per cent.) of the children did not believe in the procedure and had deliberately refused to have them inoculated. Parents of only 6.7 per cent. of the children gave economic reasons for not having had the protective treatments given.

This is clear and unequivocal evidence that medical service cannot be thrust upon people. To improve the health level in any appreciable degree the public must accept *preventive* rather than only *curative* practice. Has any reasonable person the temerity to believe, in the light of this study, that a health insurance scheme would, as if by magic, cause a revolution in mental attitude sufficient to create a demand for preven-

tive medicine? At the most, an insurance scheme might provide facilities for extending the service to 6.7 per cent. of the people and these would be taken care of cheerfully without cost to them under the prevailing system.

Would a health insurance scheme improve health conditions among the insured? The experience of the United States Army compared with that in the general population ought to answer this question. Probably the best possible medical service available on a large scale is provided for the Army and the officers and troops are required by military discipline to accept medical service both curative and preventive. The general civilian population, on the other hand, accepts medical service on a purely voluntary basis, calling a doctor when the need arises.

The Army, moreover, includes only males of military age who were selected in the first place by medical examination which eliminated the physically unfit. The general population includes both sexes of all ages and of all degrees of physical fitness.

Comparison of the health experience in the Army with that of the general population is made possible by reference to the report of the Surgeon General of the Army for 1933 and to the report of 9,000 families embracing 39,000 individuals made by the United States Public Health Service. These 9,000 families lived in all parts of the nation. They had incomes ranging from \$1,200 up, with one-half falling in the \$1,200 to \$2,000 class. Fully 40 per cent. of the individuals were children who are subject much more frequently than adults to contagious illness. In the study of these 9,000 families a nurse visited each home regularly for a year and recorded every type of illness no matter how trivial, including colds, accidents and pregnancies. For the Army a record is kept of only those illnesses which cause the patient to report for sick call.

During 1933 there were 578 cases of illness (including accidents) per 1,000 officers and men in the Army. Among the 9,000 families there were 516 cases of illness (including accidents and pregnancies) per 1,000 men, women and children which caused the loss of as much as one day from school, work or other occupation. For all illnesses, including inconsequential colds, the rate among the families was 850 per 1,000. In the Army a physician saw every case recorded.

Among the families a physician saw 79 per cent. of all cases and 85 per cent. of those which resulted in the loss of as much as one day from usual occupation.

These reports of actual experience show conclusively that health conditions in the general population are fully as favorable, all things considered, as are those in the Army. This is true in spite of the fact that the Army medical service is undoubtedly superior to any service that might be provided under an insurance scheme. The medical talent in the Army is selected with the greatest care and the medical officers are trained for service. Both preventive and curative practice is imposed upon the military personnel, a thing which could not be accomplished on the general population through insurance methods.

Would the alleged benefits from health insurance justify the costs? For salaries alone the Army spends about \$4,254,000 annually in providing medical care for about 137,000 officers and men, about \$30 per man. If hospitals and supplies were added the cost would probably be double. Anything that approaches adequacy under an insurance scheme for the general population or any substantial proportion thereof would cost no less. A cost rate of such magnitude would be out of all proportion to the benefits that might be derived and would add a severe burden to an already heavily taxed people.

Furthermore, a health insurance scheme always opens up the possibilities of exploitation by politicians and sharp practice loan sharks. In England recently there was brought to light a wide-spread game of exploiting the health insurance system. Unscrupulous organizations buy up and sell the privileges of health insurance practice to young physicians recently graduated who find it difficult to make a living. The cost of medical education is heavy. Few physicians are able to finance themselves during the early years out of college. Thus a health insurance practice which offers ready money opens up the way to no end of exploitation. Furthermore, the heart of every physician would be in the work among his clientele of paying character and not among his insurance patients.

There is no evidence that health insurance will cause people to voluntarily accept medical service of a preventive character more generally

than at present. There is no evidence that it would lead to an improvement in general health conditions. There is plenty of evidence that neither of these results would follow and there is plenty of evidence that the cost of compulsory health insurance would be out of all proportion to the benefits that might conceivably accrue.

Let us be satisfied to observe the development, for the time being, of the other socialistic schemes, old age pensions, unemployment insurance, the shorter work day, bank deposit insurance and the numerous other devices now on trial. Experimental legislation during the last two years has not been an unqualified success. The costs have been enormous with no end of increasing public debt in sight. Let us postpone another venture until more valid promises of success in health insurance can be advanced.

In the light of that day the Crusades looked good on paper. The movement was seized upon as a short cut to heaven. Most of the participants probably wound up in another region—at least so far as their experiences on earth were concerned. Let us not repeat that experience in the sheep's clothing of health insurance.

J. R. NEAL,

Chairman Legislative Committee,
Illinois State Medical Society.

WHAT SHOULD A PATIENT WITH ARTHRITIS EAT?

Walter Bauer, Boston (*Journal A. M. A.*, Jan. 5, 1935), points out that the first requisite in treating each patient with skeletal symptoms is to determine whether or not the symptoms are due to arthritis and, if so, to determine the type of arthritis. Not until this has been done should one attempt to prescribe a diet. There is no specific diet for patients with arthritides of known origin other than the dietary which would ordinarily be prescribed whenever the particular disease or etiologic agent responsible for the arthritis is dealt with. Gout is the one exception. Degenerative and rheumatoid arthritis represent the diseases one ordinarily thinks of as chronic arthritis. They are not causally related or due to the same etiologic agent. In degenerative arthritis, diet is indicated only in the presence of obesity, and then it should be sufficiently low in calories to allow weight reduction but adequate in every other respect. There is no evidence to prove that a low carbohydrate diet is indicated in rheumatoid arthritis, nor is there any proof that it is efficacious in curing the disease. Patients with rheumatoid arthritis should eat a diet high in calories (unless they are overweight), high in vitamins and adequate in respect to calcium, phosphorus and iron.

Correspondence

VITAMIN "E" AND FERTILITY

HEALTH DEPARTMENT

Stockton-on-Tees

England

February 13, 1935.

Secretary of the Illinois State Medical Society:

In one of our newspapers I have read references to vitamin "E" experiments as published in an article in the ILLINOIS MEDICAL JOURNAL. I am interested in the subject and I enclose a copy of a portion of my last annual report in which I dealt with the subject of Vitamin "E."

I am also interested in the possible connection between vitamin "E" and phosphorus intake.

I shall be grateful if you will send me any reports which you may have upon vitamin "E."

G. C. M. MCGONIGLE,

Medical Officer of Health.

The following is a copy taken from the annual report:

"Miscarriages. Animal experiments have made it appear probable that fertility and the ability to bear a full time child are closely associated with Vitamin E. Little is known about this vitamin.

"Some time ago I asked The Glaxo Laboratories if they could supply a concentrate of this vitamin. After considerable investigation this firm supplied me with a concentrate of wheat germ oil which appeared to have active properties. Whether the active principle of this concentrate is actually vitamin E is not definitely established but some interesting results have been obtained by its use.

"Seven women attending the ante-natal centre whose late pregnancy had terminated in a miscarriage, and who were anxious for a full time live child, were selected and given daily one capsule of the wheat germ extract. The period during which the daily dose was taken varied from three to six months. In each case a full time live child was born.

"The number of cases in this series is too small to allow any definite pronouncement to be made as to the efficacy of the wheat germ oil concentrate in preventing miscarriages; but the results are sufficiently interesting and encouraging to warrant a further and more extended trial.

"Miscarriages are responsible for much ill health among women and any methods which will reduce their number are worthy of exploration.

"Details of the following case are given as they illustrate an unexpectedly good result and are very interesting.

"Mrs. R. first attended the ante-natal center in 1929. She was then eight months pregnant. Examination showed that she was extremely ill, her urine was loaded with albumin and the dangers of eclampsia had to be

faced. She was immediately admitted to the Municipal Maternity Home and gave birth to a still born child. She recovered.

"In 1930 the same thing happened. A still birth again occurred at the eighth month and the woman again had severe nephritis of pregnancy. In 1931 she had a miscarriage at the third month.

"In 1932 a stillbirth accompanied severe albuminuria at the seventh month. The following year she came to the ante-natal center when two months pregnant. She was warned as to the dangers of repeated pregnancies accompanied by albuminuria and the question of the advisability of terminating the pregnancy was considered. The patient was extremely anxious to have a live child and refused to attend, or to obtain outside medical help or advice, unless she was allowed to take the risk of continuing the pregnancy. She attended the center and was kept under observation, the urine being tested weekly for the first few months and later daily specimens were tested. She was given wheat germ oil extract, advised as to diet and her mode of life. She continued to attend and progressed normally and, at full term, was delivered of a normal and healthy infant.

"I make no comments upon this case beyond stating that the woman is fortunate to be alive and doubly fortunate in possessing a healthy live child after suffering from severe albuminuria which terminated four successive pregnancies in a period of four years.

"Wheat Germ Extract and Threadworms. A chance remark referring to the treatment of intestinal worms in horses caused me to try the effects of the wheat germ oil extract upon children suffering from threadworms. The results were unexpectedly interesting.

"The usual treatment of threadworms in young children is not particularly successful and is somewhat difficult to carry out.

"An experiment was conducted upon 59 young children attending the Child Welfare Centers who harboured threadworms in the bowel. Each child was given daily one capsule of the wheat germ oil extract for a period of a week (in some cases for a fortnight). No case was so treated unless the mother stated definitely that she had seen living threadworms in the motion. The mother's word had to be accepted when assessing the results.

"The results, according to the mothers' statements were as follows:

Good. Clear of worms in from 1 to 2 weeks.....	34
Not successful	14
No record (ceased to attend).....	8
Child refused to take capsules.....	3
Total	59

"No aperients were given.

"Threadworms recurred in some few of the 34 cases reported as cured after intervals of from one to four months.

"The mothers reported, in the majority of successful cases, that the nervous symptoms so often associated with threadworms cleared up rapidly.

"These results appeared to be so encouraging that I communicated them to Dr. P. Smith of the Newcastle-

upon-Tyne Dispensary whom I knew was interested in the problem. He carried out further experiments on similar lines and obtained similar results.

"A summary of his results is as follows:

Cases successfully treated with wheat germ oil extract...	40
Not successful	2
No record (ceased to attend).....	39

"Both Dr. Smith and I found that many of the children gained weight rapidly during and after the treatment. Whether this was due to elimination of the threadworms or to some effect of the wheat germ oil extract we are unable to say.

"The mothers were enthusiastic as to the improved general condition of the children.

AN APPRECIATION OF OUR LEGISLATIVE ACTIVITIES

INDIANA STATE MEDICAL ASSOCIATION

February 7, 1935.

J. R. Neal, M. D. Chairman,
Legislative Committee,
Illinois State Medical Society,
Springfield, Illinois.

Dear Doctor Neal:

Enclosed are legislative bulletins which we have sent out so far during this session of the legislature. We are using your system of organization for legislative work and it is most effective.

THOMAS A. HENDRICKS,
Executive Secretary.

NORTH CAROLINA APPRECIATES THE ACTIVITIES OF THE ILLINOIS STATE MEDICAL SOCIETY

WINSTON-SALEM, N. C.

February 21, 1935.

To the Editor: While attending the recent meeting of the House of Delegates, of the A. M. A., I got a copy of "Why We Oppose Health Insurance," gotten out by a committee of the Illinois State Medical Society. I have read it a number of times, each time with increasing admiration. It is the clearest cut, most logical, and altogether unanswerable argument against state medicine that I have yet seen. I wonder if you could send me a dozen or more copies to send to our state congressmen and senators, together with a letter I propose to write them as chairman of our state Public Health Relations Committee. Our state secretary, Dr. McBrayer, tells me that he expects to put in a much larger order. I certainly would appreciate your sending me some extra copies now.

WINGATE M. JOHNSON, M. D.

THE PARABLES OF SOPHISTES, THE SEER

THE HOUSEHOLDERS AND THE BRIGANDS

To the Editor:

The Younger Practitioner was sore perplexed. And in the depth of his perplexity did he make pilgrimage to Sophistes, the Seer, that he might receive crumbs from the table of his abundant wisdom.

From the confusion that was in his mind he saith: "O, Sophistes, Learned Physician, for lo, these many years, the field of the healing art suffereth transgression from without until it seemeth that only clouds of darkness overshadow us and our work; yea, my heart taketh not rest at night from fearsomeness.

"The poor hath been with us always and we have given unto them without money and without price. Then cometh the tetrarch of my province with a plan whereby one physician careth for all the poor and many physicians seek this position though it payeth but a pittance. And many are the people who come unjustly seeking this charity even though they be amply able to pay therefor.

"Furthermore, the soldier returneth from the wars and the military careth for him even to his old age and for ailments that hath naught to do with his service in the wars, yea, even though he be rich in land and in cattle or it be that his ailment cometh from his own vices, care they for him.

"Moreover, if one who laboreth in the field or in the vineyard suffereth a hurt or is stricken with a fever, the master provideth for him a physician who careth for him in his sickness or who bindeth up his wounds and the master payeth therefor.

"In all these things the physician who serveth the tetrarch, the military or the masters receiveth but a trifle for what he doeth, yet he striveth covetously to secure such appointments the one underbiddeth the other and thereby disrupteth the whole of the healing art.

"Furthermore, there riseth up sects who would heal the ailing by prayer unto false gods and by the laying on of hands. All this taketh from the physician many of his people.

"Now, in the year of the great drouth when famine and pestilence are abroad throughout the land there cometh a statute and an ordinance from the Imperial Dictator that all who are an hungred shall be fed and all who aileth shall be

given succor by the physicians. And the scribes and envoys and those who investigate are in multitude even as the sands of the seashore and the tax that is imposed goeth much more for these self-conceited scribes and envoys and investigators than goeth for food or raiment or shelter or for of the care of those who aileth, and the physician who is taxed the most receiveth but a trifle for the service that he giveth. And whensoever the silver with which to pay runneth low the scribes and the envoys continue on and are paid but the physician receiveth naught.

"O, Sophistes, the Wise One, I fear me that we of the healing art are as chaff that the wind bloweth away, we are as a well without water, we are as one who walking in darkness and knoweth not whither he goeth.

"All this and more befalleth us and so causeth my heart to despair that I beseech thee, O, Sophistes, the Venerable, that ye show us a path out of the wilderness!"

Then spake Sophistes, the Seer:

"In the barren hills beyond the village of my birth there dwelt a group of wicked brigands. In the dark watches of the night did they come forth from the hills and steal from the householders of the village. At first they stole only grapes from the vineyard or corn from the field. And throughout the province other bandits did likewise. As they became greater in numbers they took goats and sheep from the flocks and cattle from the herds. Becoming more bold they drove my people from their home and took unto themselves even their homes and their fields and their vineyards and their flocks.

"My people were wroth and many a good man of the house went forth against the brigands but before their power and numbers he was helpless and he was robbed and beaten or slain.

"Then one from a neighboring village came unto my people and saith unto them, 'Each of us when he standeth alone is as a reed broken by the wind. The possessions that are justly ours and that which we have wrought, our enemy taketh away and desolation cometh unto us and unto our children. Our affliction increaseth and I foretell you that destruction awaits us from our tormentors.

"Howbeit if we are banded together no man durst stand against us and it is beyond peradventure that in our might we shall resist the onslaughts of our enemies and mayhap we shall

reclaim somewhat of that which hath been taken from us. A child breaketh a twig of wood in his hands but when many twigs are bound into a fagot it resisteth the strength of the strongest among you. What answereth thou?"

"Then did my people band themselves together and they were mindful that not one should be left out. And this was done throughout the tetrarchy and in their might did they drive forth the brigands and did restore the households and the fields and the vineyards, yea, even of the flocks that had been taken from them.

"Go thou and do likewise."

Thus saith Sophistes, the Seer.

(Alias) C. G. FARNUM,
Peoria, Ill.

SHALL LAYMEN REGIMENT PROFESSIONS?

The joint meeting of the Detroit Bar Association and the Wayne County Medical Society on February 25, 1935, is for the purpose of informing lawyers and physicians as to problems common to both groups, and to develop sustained, unified, forceful action for the eradication of exploitation.

Four foundations, bolstered by millions derived from finance, are active in efforts to exploit the professions. Two men, not of the profession, working for the Mil-Bank Fund, seem to have cleverly and adroitly insinuated themselves between the profession of medicine and the Committee on Economic Security which reports directly to the President of the United States. These two men working for an organization that pays their salaries from money derived from profits on *baby's milk* are committed to the socialization of medicine.

The doctor will be accorded the same type of commercial regimentation under which the milk man now operates, but with a difference. The milk business is private monopoly; the *contemplated business of medicine* will be state medicine. Finance and industry, including milk moguls, will be the forces directing governmental control.

To stop the commercialization of the sick, and to spare the people from mechanized medical service, the professions of Law, Dentistry, Nursing, Pharmacy, and Teaching must support the doctor in his responsibility. —*Detroit Medical News*, February 25, 1935.

WILL AMERICA COPY GERMANY'S MISTAKES?

The Public Relations Bureau of the Medical Society of the State of New York has released for publication the following informative data:

Albany, N. Y., Feb. 24.—"The acid test of experience condemns compulsory health insurance schemes wherever they have been tried," stated Dr. Arthur J. Bedell, president of the Medical Society of the State of New York here today, in opposing the bill now pending in the state legislature.

"The medical profession disapproves of the proposed

law because this method of handling medical care is damaging to the patient and disastrous to the doctor.

"This protest does not mean opposition to the policies of the administration in its recovery efforts or in any other phases of the 'New Deal.' However, physicians as a class are better qualified to speak than any other group, as to the effects of a compulsory health insurance law on the community. The Medical Society of the State of New York, representative of the physicians of the state, rejects the project. It will not work. It will bring to the community conditions quite the opposite of the expectations of its well-wishing proponents."

Dr. Bedell pointed to the utter failure of compulsory health insurance in Germany, where it has been tried for half a century. He said that Gustav Hartz, labor economist of Berlin, and author of several books on German's social politics, has analyzed the fallacies of the scheme and exposed to the world the harm, rather than good, that compulsory health insurance has actually produced. Dr. Bedell stated that this report, entitled, "Will America Copy Germany's Mistakes?," will be published in the March 1 issue of the *New York State Journal of Medicine* as translated from the German by the Pennsylvania Self-Insurers' Association of Philadelphia.

"Sick insurance," according to the report, "provides the workman with medical attendance free of charge, with medicine and other necessities, and with an allowance. Anyone will at first sight consider this a great blessing for the workman as well as for national health. The reality, however, is far different.

"The insured workman becomes a second class patient. The mass demand compels a limitation in the use of medicines. Doctors must not prescribe what they consider good for the patient; they are only allowed to give remedies entered in a book of medical regulations for insurance purposes.

"Dread of illness obsesses most people and this has been pressed into a system 'illness made easy' by which the will to be well is strangled. The doctor is consulted a dozen times where once would be sufficient—the insurance pays. The prescribing of medicine and bandages is desired. When they have been obtained they lie about until they are no longer fit to be used—the insurance pays. Besides it is nice to get something in return for the premiums paid year in and year out. There is developed a fear of illness which shakes the will for recovery—the best aid to health. Pretenders and hypochondriacs are bred and the use of medicine becomes excessive.

"Medical science has become a cheap article and doctors have given up conscientious treatment. The genuine patient is neglected, is not given the necessary care. The greater the mass consultation, the lower are the doctor's fees. They are, therefore, compelled to resort to mass practice.

"All this is at the workman's expense, for the part of the premiums supposed to be paid by the employer is in reality borne by the workman either as a consumer or wage earner. As the employer's premium share is immediately connected with the wage, it is shifted over on the wage. In Germany, no one any longer doubts the fact that the employer's share of the pre-

mium is taken from the workman's wages. What the employer pays as his contribution, he cannot pay the workman in the form of wages.

"A network of deception has been spread. In millions of cases wrong was turned into right and the gates opened wide to fraud. When wages are being decreased, when work is scarce and work hours shortened, when there are fewer shifts, many holidays, sick insurance comes in handy. One objects to the work he is given, another does not feel like working. Matters soon make an extensive controlling system necessary. This ends in badgering all persons.

"Patients are visited in their homes by controlling officials who have to convince themselves that the patient is really ill and not doing any work. The sick insurance engages so-called confidential doctors who have to submit the patient to a final examination to see whether he is too ill to work. The results of such examinations are to a great extent startling. Here is one instance from among thousands: 2008 patients were ordered to appear for a final examination. Eight hundred sixteen of them at once declared their complete recovery; 289 were found to be well by the confidential doctor. So nearly half of them were not ill at all.

"The confidential doctor is, so to say, the medical policeman, who not only controls the patients but also his fellow doctors who are treating them.

"The genuine patient is justly indignant to find that the existence of his illness is doubted, and that he who has always paid his premiums regularly and has a right to demand conscientious attendance, is considered a cheat.

"This system, together with the rest of the bureaucratic apparatus, has wedged itself between doctor and patient, completely destroying the patient's confidence in his physician, which greatly retards all recovery.

"Those who know anything about the actual working of compulsory health insurance will not be surprised that the confidential doctor, whose task it is to keep the number of patients low, may declare a patient recovered, who nevertheless dies two days later."

MICHIGAN LABOR UNIONS BID TO CONTROL MEDICINE

The following is taken from the *Detroit Medical News*, February 25, 1935.

LABOR UNIONS BID TO CONTROL MEDICINE!

Michigan House Bill No. 111, introduced in the Legislature last month by Representative Martin, provides for the establishment of sickness, unemployment, old age and social insurance to be administered and controlled by workers' and farmers' organizations.

"The People of the State of Michigan Enact:

"Section 1. The department of labor and industry is hereby authorized and directed for the immediate establishment of a system of unemployment insurance for the purpose of providing compensation for all workers and farmers above 18 years of age, unemployed through no fault of their own. Such compensation shall be equal to average local wages, but shall in no case be less than ten dollars per week plus three dollars

for each dependent. Workers willing and able to do full-time work but unable to secure full-time employment shall be entitled to receive the difference between their earnings and the average local wages for full-time employment. The minimum compensation guaranteed by this act shall be increased in conformity with rises in the cost of living. Such unemployment insurance shall be administered and controlled, and the minimum compensation shall be adjusted by workers and farmers under rules and regulations which shall be prescribed by the department of labor and industry in conformity with the purposes and provisions of this act through unemployment insurance commissions and directly elected by members of workers' and farmers' organizations.

"Section 2. The department of labor and industry is hereby further authorized and directed to provide for the immediate establishment of other forms of social insurance for the purpose of providing compensation for all workers and farmers who are unable to work because of sickness, old age, maternity, industrial injury, or any other disability. Such compensation shall be the same as provided by section 1 of this act for unemployment insurance and shall be administered in like manner. Compensation for disability because of maternity shall be paid to women during the period of eight weeks previous and eight weeks following childbirth.

"Section 3. All moneys necessary to pay compensation guaranteed by this act and the cost of establishing and maintaining the administration of this act shall be paid by the government of the state of Michigan. All such moneys are hereby appropriated out of moneys in the general fund. The benefits of this act shall be extended to workers, whether they be industrial, agricultural, domestic, office, or professional workers, and to farmers, without discrimination because of age, sex, race, color, religious or political opinion or affiliation. No worker or farmer shall be disqualified from receiving the compensation guaranteed by this act because of past participation in strikes, or refusal to work in place of strikers, or at less than average local or trade-union wages, or under unsafe or insanitary conditions, or where hours are longer than the prevailing union standard of a particular trade or locality, or at an unreasonable distance from home."

SOME PROVISION SHOULD BE MADE FOR REIMBURSING DOCTORS AND HOSPITALS FOR SERVICES RENDERED VICTIMS OF AUTOMOBILE AND OTHER ACCIDENTS

There is apparent a gradual awakening for the need of reimbursement for services rendered victims of automobile and other traffic accidents. As every physician and many hospitals know to their sorrow such services in the majority of cases must be marked off to actual loss. This is as true in Europe as it is in America, and "over there" action to prevent such injustice is even now pending.

The hospitals were the first to howl over the state of affairs. In Ohio, in 1933, a law was enacted with intent to provide some sort of protection for the hospi-

tals in that state. Now the need of protection for physicians is even greater than is that of the hospital, and it is one instance where "still another law" can with benefit be placed upon our statute books. In 1931 it was estimated that the total loss from such sources—i. e.—unpaid medical and hospital bills for automobile highway accidents totaled about twenty-five million dollars.

Upon this subject the *Nebraska State Medical Journal* printed an editorial, so highly informative, that it is with pleasure that the article is herewith reproduced.

REIMBURSEMENT FOR HOSPITALS FOR CARE OF INDIGENT INJURED IN AUTOMOBILE ACCIDENTS: THE OHIO LAW

Some time ago (June, 1932) we published an editorial touching upon the need of providing some means of reimbursing hospitals and physicians for the care of indigent persons injured in automobile accidents. It was estimated that in 1931 the hospital bills for the highway accidents amounted to \$24,000,000, forty per cent of which is uncollectable. At the same time it was estimated that an equal amount is the value of medical and surgical services and that 40 per cent remained uncollectable. The total loss of hospitals and medical service was therefore estimated to be about \$25,000,000 for that one year.

The State of Ohio, in 1933 passed a law providing for the payment of hospital care to indigent injured in automobile accidents. So worthwhile is this law that we give it here almost in its entirety.

This law should go a step further to include necessary and reasonable physicians' fees, on about the same basis as Workmen's Compensation fees, for the same class of injuries treated, and with the same provisions as outlined for hospitals.

It appears to the writer that there are two methods of approach in this matter—the Ohio plan herewith given or compulsory indemnity insurance for all licenses, payable in case of accidents to hospital and physician as their interests may appear.

The medical profession and hospitals should rise in their might and demand some recourse from an intolerable situation.

AN ACT

To provide reimbursement for hospitals on account of expenses of the care of indigent persons injured in motor vehicle accidents and to amend sections 6291 and 6309-2 of the General Code.

Be it enacted by the General Assembly of the State of Ohio:

DEFINITIONS

Section 1. For the purpose of this act:

"Motor vehicle injury" means any personal injury suffered by a human being and caused by the operation of a motor vehicle, whether the injured person be the operator of such motor vehicle, a passenger in the same or in another vehicle, a pedestrian, or whatever be the relation of such injured person to the operation of such vehicle; and whether or not such motor vehicle is under the control of a human being at the time of such injury.

"Hospital" means any institution, not organized and/or operated for profit, and registered with the state of

Ohio, department of health, which receives and cares for patients suffering from motor vehicle injuries, the per diem cost of which care shall be ascertained and certified in the manner provided in this act.

"Per diem cost" means the per diem cost of caring for a patient in a hospital as determined by the industrial commission of Ohio for the purpose of the laws which it is required to administer.

"Indigent patient" means a person who has suffered a motor vehicle injury, is received and cared for in a hospital, is unable to pay for the cost of such care and whose account therefore remains unpaid at the expiration of ninety days after the termination of such care; it excludes an employee suffering from a motor vehicle injury with respect to which he is entitled to the benefits of the workmen's compensation act of this or any other state or country. A person injured by the operation of a motor vehicle shall be deemed unable to pay such charges if it shall appear that, should an action be brought and judgment secured for the amount thereof against him, or against any other person legally responsible for his care, execution thereon would be unavailing.

INDUSTRIAL COMMISSION SHALL CERTIFY PER DIEM COST OF HOSPITAL

Section 2. Within thirty days after this act shall take effect the industrial commission of Ohio shall certify in duplicate to the registrar of motor vehicles and the auditor of state, respectively, the name, address and per diem cost of all hospitals in the state as determined by the said industrial commission for the purpose of the laws which it is required to administer. Thereafter, from time to time, said industrial commission of Ohio shall in like manner certify any additions to or subtractions from said list or any changes in such per diem costs which may occur. All claims made under this act shall be audited and paid in accordance with the per diem costs so certified and in effect at the time the charge shall have been incurred.

HOSPITAL SHALL FILE MONTHLY REPORT; CONTENTS

Section 3. Each hospital, in order to be entitled to the benefit of this act, shall make and file with the registrar of motor vehicles monthly, as of the last business day of each month, a report under oath showing the name of each sufferer from a motor vehicle accident, received into and cared for in such hospital during the month covered by the report, for whom such hospital may desire to make claim under this act; the time and place of the accident or occurrence in which the injury was incurred; the total number of day's care given to such sufferer in the month for which report is made and in any preceding month or months; the date of the receipt and discharge of such sufferer or other termination of such care; and such other facts or information as the registrar of motor vehicles may require in the form of report prescribed by him.

HOSPITAL MAY PRESENT STATEMENT OF CLAIM; CONTENTS

Section 4. At the time of making any monthly report each hospital may present a statement of its claim

for reimbursement for the cost of the care of each indigent patient, which claim has matured within the month covered by the report then due or within any previous month. Each such claim shall be made in the form prescribed by the registrar of motor vehicles and shall show the following:

1. The name of the person to whom care has been given.
2. The number of days' care, with the dates of reception into the hospital and discharge or other termination of care.
3. The amount of the claim.
4. A statement under oath, showing the effort made by the hospital to collect the amount of the claim from the indigent patient, and the amount, if any, collected from such patients, or any other person on his account.
5. The affidavit of the indigent patient, if living, and the statement of a township trustee, municipal officer or director or like representative of a social agency engaged in the relief of the poor, having knowledge of the facts, showing that the indigent patient is unable to pay such hospital charges.
6. Such other facts and information as the registrar of motor vehicles may require in the form of claim prescribed by him.
7. For the purpose of the claim provided for in this section an indigent patient who is not otherwise able to pay such hospital charges shall not be deemed to be able to pay the same because a third person might be held liable in an action to recover damages on account of such motor vehicle injury, which has not been filed; but if such an action has been filed, the statement of claim shall show the fact and the registrar of motor vehicles may in such event suspend the determination of such claim until such action shall have terminated and may require such hospital to furnish such further information with respect to such action as he may deem necessary in order to determine the ability of the patient to pay the charges for which claim is made.

EXAMINATION AND AUDIT OF CLAIMS BY MOTOR VEHICLE REGISTRAR

Section 5. The registrar of motor vehicles shall examine and audit each claim presented to him under the provisions of this act. From the facts and information contained in the claim, the monthly reports of the claimant hospital, the supporting certificates and affidavits, and such other evidence as he may require, the registrar of motor vehicles shall ascertain and determine, as to each claim, the following facts:

1. Whether or not the claim is predicated upon care given to a person suffering from a motor vehicle injury as defined in this act.
2. Whether or not such person is able to pay the hospital charges for which the claim is made, within the meaning of this act.

PAYMENT OF CLAIM

Section 6. When and if the registrar of motor vehicles shall have determined that a claim presented to him under the provisions of this act by a hospital which has complied with said provisions is made in respect of an indigent patient as evidenced by his findings under section 5 of this act, he shall determine the amount of

such claim in accordance with the per diem cost of such hospital as certified to him under the provisions of this act less any amount collected from the patient, and shall pay the amount so ascertained to the claimant from the "state maintenance and repair fund" available for his use and appropriated for that purpose. The registrar of motor vehicles may make monthly payments to each hospital entitled to receive the same covering all claims audited and approved by him within the preceding month.

DISAPPROVAL OF CLAIM

Section 7. If the registrar of motor vehicles shall disapprove any claim made under the provisions of this act, except as to the amount thereof, he shall notify the claimant hospital that the same has been rejected, and state in such notice the ground or grounds of rejection. In such event the claimant hospital shall be entitled to a hearing before the registrar of motor vehicles on the ground of rejection so specified, within thirty days after the receipt of such notice, and his decision thereon shall be final.

PROCEDURE IF PATIENT, OR PERSON LEGALLY CHARGEABLE, BECOMES ABLE TO PAY

Section 8. Whenever it shall come to the knowledge of the managing officer of a hospital which has received payment of a claim under the provisions of this act that the patient in respect of whom such claim has been paid, or any other person chargeable by law with his care and support has paid, or is or has become able to pay the amount thereof, such managing officer shall notify the registrar of motor vehicles thereof, and, if such hospital shall thereafter make a monthly report and/or a claim for reimbursement under the provisions of this act, a reference to such paid claim in such form as the registrar of motor vehicles shall prescribe, showing the name of the patient and the amount paid, shall be incorporated in or attached to such report or claim. Wherever the registrar of motor vehicles shall otherwise acquire knowledge of facts showing that a patient in respect to whom a payment has been made as provided in this act, or any other person chargeable by law with his care and support has paid, or is or has become able to pay such amount thereof, he shall notify the hospital which has received such payment by letter addressed to the managing officer thereof, giving a brief statement of the facts thus coming to his knowledge and specifying the amount of such paid claim, the date of its prior payment, and the name of the person from whom the same may be recovered.

Within one month after such managing officer shall have given the notice herein required, or such hospital shall have received such notice from the registrar of motor vehicles, such hospital shall, unless the amount specified therein has been fully paid, collect such amount or the balance thereof from such patient or other person chargeable by law with his care or support and in default of such collection, file an action against such patient or other person chargeable by law with his care and support for the recovery of the sum so paid, as balance thereof. Such hospital shall in its monthly reports, or otherwise, advise the registrar of motor

vehicles as to the collection of such amount, or as to the filing of such action and the proceedings therein; and in the event of recovery of judgment therein, and if the amount of such judgment is not realized, shall show by certified copies of the proceedings that all legal remedies for the satisfaction of such judgment have been exhausted.

When notice has been given as required by this section the registrar of motor vehicles shall deduct the amount of the prior payment made to the hospital affected thereby from any payment or payments to be made to such hospital under the provisions of this act on or after two months from the date of such notice, unless such hospital shall have advised the registrar of motor vehicles as herein provided that an action has been filed for the recovery of such amount from the patient or other person chargeable by law with his care and support, that such action has not been finally determined, and that there is reasonable ground for delay; or unless such hospital shall so advise the registrar of motor vehicles that such action has been prosecuted to final judgment and that all legal remedies for the satisfaction of such judgment have been exhausted without realizing the amount thereof.

ACTION TO RECOVER PAYMENT

Section 9. Whenever under the provisions of section 8 of this act the registrar of motor vehicles would be authorized to deduct the amount of a prior payment to a hospital from a subsequent payment or payments to such hospital, he shall, in the event no such subsequent payment shall fall due within three months after the right to make such deduction accrues, certify the amount of such prior payment, without interest, to the attorney general for collection from such hospital. Such amount may be recovered from such hospital in an action brought in the name of the state by the attorney general for the use of the "state maintenance and repair fund." Such action shall be brought within the time limited by law for the commencement of civil actions upon liabilities created by statute other than forfeiture and penalties and the cause of action in such cases shall be deemed to have accrued on the date on which such right of deduction arose.

Section 10. That sections 6291 and 6309-2 of the General Code be amended to read as follows:

PURPOSE OF ANNUAL LICENSE TAX

Section 6291. An annual license tax is hereby levied upon the operation of motor vehicles on the public roads or highways of this state, for the purpose of enforcing and paying the expense of administering the law relative to the registration and operation of such vehicles, maintaining and repairing public roads, highways and streets, paying the counties' proportion of the cost and expenses of cooperating with the department of highways in the improvement and construction of state highways, paying the counties' portion of the compensation, damages, cost and expenses of constructing, reconstructing, improving, maintaining and repairing roads, and for the use of the general funds of the counties and the townships and for the purpose of enforcing and paying the expenses of administering the law to provide reimbursement for hospitals on account of the expenses

for the care of indigent persons injured in motor vehicle accidents, and as to the tax levied between the effective date of this act and March 1, 1933, for the purpose of providing poor relief in the various counties of this state. Such tax shall be at the rates specified in this chapter and shall be paid to and collected by the registrar or deputy registrar at the time of making application for registration as herein provided.

DISTRIBUTION OF REVENUE; STATE MAINTENANCE AND REPAIR FUND

Section 6309-2. The revenue collected under the provisions of this chapter shall be distributed as follows:

(1) Twenty-five per centum of all taxes collected under the provisions of this chapter shall be for the use of the municipal corporation or county which constitutes the district of registration as provided in this chapter. The portion of such money due the municipal corporation shall be paid into the treasuries of such municipal corporations forthwith upon receipt by the county auditor, and the remainder retained in the county treasury. In the treasuries of such counties, such moneys shall constitute a fund which shall be used for the maintenance and repair of public roads and highways, and for no other purpose, and shall not be subject to transfer to any other fund. "Maintenance and repair" as used in this section includes all work done upon any public road or highway in which the existing foundations thereof are used as a subsurface of the improvement thereof in whole or in substantial part; and in the treasuries of such municipal corporations, such moneys shall constitute a fund which shall be used for the maintenance, repair, construction and repaving of public streets, and for no other purpose and shall not be subject to transfer to any other fund, provided, however, that as to such municipal corporations, not more than 50 per cent of the total funds available during any year from such source including the unexpended balance of such funds from any previous year, shall be used in such construction and repaving which shall be done by contract let after the taking of competitive bids as provided by law, or in the manner provided in the charter of any such municipal corporation.

(2) Five per centum of all taxes collected under the provisions of this chapter, together with interest earned by fees deposited by the treasurer of state as provided in section 6309 of the General Code, shall constitute a fund for the use of the several counties for the highway and road purposes specified in paragraph (3) of this section. Said fund shall be divided equally among all the counties in the state. Said fund shall be paid out on vouchers prepared by the registrar and warrants drawn by the auditor of state in equal proportions to the county auditor of each county within the state to be used for the purposes herein designated.

(3) Forty-seven per centum of all taxes collected under the provisions of this chapter shall be for the use of the county in which the owner resides or in which the place is located at which the established business or branch business in connection with which the motor vehicle registered is used, as the case may require, for the construction, reconstruction, improvement, maintenance and repair of roads and highways.

(4) Twenty-three per centum of all taxes collected under the provisions of this chapter shall be paid by the registrar into the state treasury to the credit of the "state maintenance and repair fund," as provided in section 6309 of the General Code.

The "state maintenance and repair fund" provided for herein shall be available for the use of the registrar in defraying the expenses incident to carrying out and enforcing the provisions of this chapter and (to the extent of a sum equal to nineteen cents for each motor vehicle registered in the state for each year) in carrying out and enforcing the provisions of this act to provide reimbursement for hospitals on account of expenses for the care of indigent persons injured in motor vehicle accidents and for the use of the director of highways in the manner provided by law. The general assembly shall make appropriations therefrom for such purposes.

EDUCATIONAL COMMITTEE

February Report

SPEAKING APPOINTMENTS

60—Physicians gave popular health talks before a great variety of audiences:

Rotary Clubs.

Lions.

Kiwanis.

Women's Clubs.

Parent Teacher Associations.

High School assemblies.

Commercial College students.

Sunday evening clubs.

Y. M. C. A.s.

Business Women's groups.

Social service centers.

Women's Auxiliaries to medical societies.

Transient boys and men of the Illinois Emergency Relief.

Programs were arranged for lay groups in the following cities:

Chicago—30 clubs	Warren
Joliet	East St. Louis
Waukegan	Dixon
Mt. Greenwood	Oak Park
Minonk	Humboldt
Danville	Springfield
Des Plaines	Ridgefarm
Morris	Pana
Crystal Lake	Beverly Hills
Park Ridge	Riverdale

SCIENTIFIC SERVICE APPOINTMENTS

19—Physicians were scheduled to present scientific papers before medical societies as follows:

Scott County, Iowa—Kellogg Speed—Surgery.

Rock Island—A. C. Ivy—Viscero-Visceral Reflexes as Related to Symptomatology.

Will-Grundy—Jerome R. Head—Pulmonary Tuberculosis.

11th Councilor Dist. John R. Neal, Charles S. Skaggs, Harold M. Camp, Medical Problems.

LaSalle County—E. P. Sloan—Exophthalmic Goiter.
V. M. Leech—Ophthalmology.

St. Joseph's Hospital, Elgin—J. H. Mitchell—Common Skin Diseases.

Fulton County—David S. Hillis—Management of the Normal Labor Case.

McHenry County—Charles H. Phifer—Illinois Emergency Relief and the Medical Profession. Julius H. Hess.

Monroe County—J. A. Ikemire—Endocrinology.

DeWitt County—John R. Wolfer—Management of Gall Bladder and Biliary Tract Disease.

Warren County—George K. Fenn—Angina Pectoris.
Guy M. Cushing—Acute Perforating Gastric and Duodenal Ulcers.

Christian County—James H. Hutton—Practical Points in Endocrine Diagnosis and Treatment.

Franklin County—Clarence L. Wheaton—Lobar Pneumonia.

Franklin County—Thomas P. Foley—Heart Disease.

Whiteside County—C. C. Maher—Hypertension.

HELP GIVEN MEDICAL SOCIETIES IN PROMOTING SCIENTIFIC PROGRAMS

297—Double-postal card notices mimeographed and mailed to physicians for LaSalle County.

131—Notices to physicians about Perry County Medical meeting.

132—Doctors sent notices about the 11th Councilor District meeting.

142—Postal-card announcements to physicians about Jefferson-Hamilton County Medical Society.

136—Announcements mailed for Franklin County Medical Society.

258—Announcements mailed to physicians for Whiteside County Medical Society.

PUBLIC LIBRARIES

180—Health articles sent to Chicago libraries for posting and reference filing.

328—Health articles sent to downstate libraries.

4—Health stories for posting to Central Y. W. C. A., Chicago.

4—Health stories for posting to Chicago Red Cross headquarters.

RADIO PROGRAMS

22—Radio broadcasts covering a period of approximately one hour per week from stations WAAF, WGN, WBBM and WJJD.

Robert S. Berghoff—Heart Disease.

Elnor W. Hagens—Ear Troubles in Children.

Leroy H. Sloan—Getting Your Money's Worth.

Harold W. Miller—The Climatic.

Walter L. Palmer—Saving of Human Life.

S. J. Taub—Bronchial Asthma.

E. D. Nora—Care of Heart Patients.

J. G. Gallagher—Appendicitis.

Jerome W. Hayden—The Ear.

W. W. Furey—The Use of X-Ray.

W. B. Serbin—Hospital Maternity Care.

S. J. Taylor—The Thyroid Gland.

Albert H. Andrews—The Common Cold.

Louis Schultz—Lesions of the Mouth.

Harold Voris—Neuralgia.

Frederick Tice—Tuberculosis.

James P. Simonds—The Rising Death Rate from Cancer.

Samuel Soskin—Prevention of Diabetes.

Stanley J. Norys—Nasal Obstructions.

J. J. Moore—Routine Laboratory Examinations.

J. H. Wallace—Heart Disease in Children.

A. J. Larkin—Red Birthmarks or Angiomas.

ASSISTANCE TO WOMAN'S AUXILIARY

Programs arranged for the Women's Auxiliaries of Will-Grundy, McHenry, Woodford, St. Clair counties.

334—Notices mimeographed for Woman's Auxiliary, Chicago Medical Society.

350—Invitations to members of Woman's Auxiliary, Chicago Medical Society.

50—Copies of minutes of Board meeting of Auxiliary to Illinois State Medical Society.

Material furnished program chairman of the State Auxiliary.

Vivisection material furnished a number of Auxiliaries.

NEWSPAPER SERVICE

Service to Chicago Medical Society and its branch societies:

4—Newspaper stories re Northwest Branch.

4—Newspaper stories re Calumet Branch.

5—Newspaper stories re Jackson Park Branch.

4—Newspaper stories re North Shore Branch.

9—Newspaper stories re Chicago Medical Society.

88—Releases re LaSalle County Medical Society.

44—Releases re Franklin County Medical Society.

61—Releases re DeWitt County Medical Society.

54—Releases re Whiteside County Medical Society.

20—Releases to newspapers using one health column each month.

415—Releases to newspapers using health column daily or weekly.

Press articles were written and approved on the following subjects:

Hospital Maternity Care.

What You Should Know About Tuberculosis.

The Way to Develop Proper Posture.

Red Birthmarks or Angiomas.

Spring Fever in Disguise.

The Thyroid Gland.

CONTACTS WITH LAY ORGANIZATIONS

A program on health insurance and what it means was arranged for the public health chairmen of the Chicago district of the Illinois Federation of Women's Clubs. This program brought forth much discussion and more note taking than any other subject.

The National Congress of Parents and Teachers has furnished the Educational Committee a supply of Summer Round-Up material for use in Illinois. This will be mailed out to all county medical society secretaries within a short time. The Illinois Congress has asked the Committee to furnish a speaker for the health section of a Homemakers' Conference to be held at the Sherman Hotel, Chicago, in March.

Copies of radio talks and package libraries furnished a number of young mothers study groups.

Cooperation with the Illinois Emergency Relief in

furnishing speakers and moving picture films for the homes for transient men and boys in Chicago.

Respectfully submitted,

Jean McArthur, Secretary.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

1935 Annual Meeting

A most interesting program is being planned for the 1935 Annual Meeting to be held in Rockford, on May 21, 22, 23, 1935. A most cordial invitation is extended to all doctor's wives, whether a member of the Auxiliary or not, to attend this session.

1935 National Convention. Atlantic City is the meeting place for 1935 meeting of the Woman's Auxiliary to the American Medical Association, June 10-14, 1935.

Board Meeting. A meeting of the Board of Directors of the Woman's Auxiliary to the Illinois State Medical Society was called to order at 10:30 A. M., January 26, 1935, at the Woman's University Club, 185 N. Wabash Avenue, Chicago, Illinois, the president, Mrs. Lucius Cole, presiding.

There was the usual routine business with reports of officers and standing committees. Each county president is to receive copies of "The History of the First Twelve Years of the Auxiliary" with the suggestion that they be sold for ten cents a copy.

Mrs. Dooley, Chairman of the Convention, gave a tentative program of the Annual Meeting to be held in Rockford, May 21-23, 1935.

The following nominating committee was elected to report at the Rockford Meeting.

Mrs. L. B. Joslyn, Maywood, *Chairman*,

Mrs. R. K. Packard, Chicago.

Mrs. E. J. Meyer, Chicago.

Mrs. H. L. Schaeffer, Cornell.

Mrs. J. R. Neal, Springfield.

Alice M. Joslyn.

THE AMERICAN NEISSERIAN MEDICAL SOCIETY

The American Neisserian Medical Society was founded on June 12, 1934. It is dedicated to the promotion of knowledge in all that relates to the gonococcus and gonococcal infections, that there may be attained improvement in the management of gonorrhea and a reduction in its prevalence. There are 115 charter members.

The society plans to carry out the following program:

- A. The scrutiny of the management of gonorrhea in both male and female.
- B. Clinical and laboratory research in the diagnosis, medical and social pathology, and the treatment of gonorrhea.
- C. Dissemination among the medical profession and the public of authoritative information concerning gonorrhea.

Membership is limited to:

- A. Residents of the United States or its territories, Canada or Mexico.
- B. Graduates of a medical school recognized by the American Medical Association.
- C. Those who are engaged in some phase of the management of gonorrhea.

Invitation to membership is extended to all qualified physicians who desire to work for improvement in the management of gonorrhea. Application blanks can be obtained from the undersigned.

OSCAR F. COX, JR., M. D., Secretary,

475 Commonwealth Ave., Boston, Mass.

EULOGY OF THE DOCTOR

There are men and classes of men that stand above the common herd, the soldier, the sailor, the shepherd not infrequently, the artist rarely, rarer still the clergyman, the physician almost as a rule. He is the flower of our civilization and when that stage of man is done with, only to be marvelled at in history, he will be thought to have shared but little in the defects of the period and to have most notably exhibited the virtues of the race. Generosity he has such as is possible only to those who practice an art and never to those who drive a trade; discretion, tested by a hundred secrets; tact, tried in a thousand embarrassments; and what are more important, Herculean cheerfulness and courage. So it is, that he brings aid and cheer into the sick room and often enough, though not so often as he desires, brings healing.—Robert Louis Stevenson.

MEDICAL MEN FOR THINGS MEDICAL

The principle that medical men should be the ones to exercise control over medical service is almost axiomatic. Yet there is confusion of thought where there could be straight thinking if all the facts were brought out and faced.

There are those who would virtually make the physician an employee of the state. They fail to recognize the utter incompatibility between the American political system and the methods of truly professional men.

There are those who complain about the scarcity of physicians. Yet it is a fact that while England has 1 doctor for 1,490, France 1 for 1,690, and Sweden 1 for 2,890, there is in the United States 1 physician for every 780 persons.

There are those who denounce our hospitals on the score of high charges for service, but the truth is that the cost per day of a hospital room with meals and the day and night personal ministrations required by an invalid is usually less than a well person would pay for mere room and meals in a first-class hotel.

There are those who would like to let down the bars to self-medication. Yet the fact is that during the last few generations the average span of human life has been extended ten years, chiefly through the discoveries of medical science.

Physicians know these things. They spend years acquiring an education on the care and repair of the most marvelous mechanism on earth—the human body. But they would readily admit that this education does

not qualify them for telling railroad executives how to solve transportation problems or impresarios how to stage an opera. The work of the world needs many kinds of specialized knowledge, but certain it is that each field of work will be best managed by those who know it best.—Mead Johnson & Co., in *Hygeia*, August, 1934.

RECENT PROGRESS IN TREATMENT OF PLUMBISM

According to Irving Gray, Brooklyn (*Journal A. M. A.*, Jan. 19, 1935), the administration of a diet low in calcium and the addition of either ammonium chloride or phosphoric acid definitely causes an increased excretion of lead. The addition of a diet high in phosphorus aids in the excretion of the lead. In several cases of chronic plumbism the lead in both the urine and the feces was increased in amount after phosphate therapy was instituted. Experimental and practical experience bears out Shelling's opinion. The addition of a high phosphorus high calory diet with sufficient vitamin content improved the general appearance; the nutritional requirements were adequate and the rate of excretion of lead was maintained. In the "deleading" treatment of his patients the author is now using the low calcium, high phosphorus diet with a ratio of 1-3 and 1-4. In persons who have absorbed lead it is possible that waves of liberation occur from time to time and produce symptoms of clinical activity. The lead that has been absorbed and is released at certain periods can be much more rapidly excreted at stated intervals with this type of treatment. Although complete "deleading" is not possible, as demonstrated experimentally, nevertheless it is reasonable to assume that the lead excreted is a large fraction of the lead that has been absorbed. The "deleading" treatment may have to be repeated at intervals if there is evidence of continued excretion of abnormal amounts of lead. It is advisable that all patients undergoing "deleading"—treatment be hospitalized. The failure of acute toxic symptoms to develop when there is increased lead excretion is further proof of the fact that there is no parallel between the absorption and excretion of lead and the toxic manifestations. The estimation of lead in the excreta is of aid only in proving whether or not abnormal amounts of lead have been absorbed.

CONTROL OF LEAD POISONING IN THE WORKER

On the basis of his experience Elston L. Belknap, Milwaukee (*Journal A. M. A.*, Jan. 19, 1935), concludes that: 1. The control of lead poisoning by medical supervision is a highly specialized form of work, although it requires the broad background of internal medicine. 2. One must still have a workable course of scientific treatment of lead poisoning to care for workers until the engineers have made lead absorption impossible. 3. A clinically proved and detailed method for the control of lead poisoning in the worker at work is presented, which consists of a stringent preemployment examination by the physician him-

self, periodic reexamination at least every two weeks to three months, according to the intensity of exposure. Included in the periodic reexamination there must be a record of laboratory studies, whenever a man is reexamined, a hemoglobin and a stipple cell count must always be made and the results on the periodic examination must be analyzed frequently by the medical consultant so that treatment may be changed immediately, if necessary, and recommendations made for further precautions against exposure. 4. One should not wait for disability before one starts treatment. 5. Thoughtless and wholesale calcium treatment may be unwise, but when given advisedly it is of specific aid. 6. Even the so-called insusceptible workers may have relatively large quantities of stored lead ready to be liberated by natural or artificial means. 7. With perfectly controlled technic, in selected cases, artificial deleading of cases previously heavily loaded with lead is a benefit not only to industry but also to the worker, and it is safer than uncontrolled spontaneous deleading.

WHY

(The wail of an exasperated but loyal M. D.)

Oh, when from his nostrums and medical fakes
The "patent" man's fortune immense is,
Oh, what in the world is the reason it takes
Every cent I collect for expenses

Oh, when the gudewife of the opulent quack
Her satins and silks is parading,
Oh, why has my wife but two gowns for her back,
And the best of them dingy and fading?

Oh, when the brigades of fibromatous folk
Are swelling the cancer quack's coffers,
Oh, why am I thankful in caustic to soak
Some verruca that accident offers?

Oh, when, before deigning his patients to ease
His fee in advance the quack collars,
Oh, why do I have, when a patient I seize,
Such a long, weary chase for my dollars?

Oh, when yon galenical humbugs galore
Stroll gaily through rose-fragrant places,
Oh, why do I wander, all worn and foot-sore,
In a desert that has no oasis?

* * *

Because in the days of my youth I was taught
A principle timely and healthy,
And for quackdom's success I've no envious thought,
For I'd rather be honest than wealthy.

—Tommy Dod—*The Medical Age*.

American health was better last year than ever in history, but we dare say the people will never be satisfied until they have enough money to go back to doctoring.—*Portland Oregonian*.

Original Articles

MEDICINE,

The Last Fifty Years and the Next Fifty.

WM. ALLEN PUSEY, M. D.

CHICAGO

On an occasion like this when we commemorate our colleagues whose careers have ended, it may be wholesome for us to revert to the period in which they and we have lived, and in the light of it to consider what is likely in store for those who will follow us. And, so, I propose to speak today on medicine of the last fifty years and of the next fifty.

A wiser man would doubtless be deterred by the second part of my subject. But I approach it in the spirit of an old traveler who is thrilled by the memory of his momentous experience, who likes to talk about the experiences of the road, whenever he can get a listener: to tell of the adventures, of the pleasures and the difficulties and how they were met, to indulge in the privilege of forecast, and to advise future travelers of what they should find and what they should do. If I talk in the first person I am speaking from the standpoint of personal experience.

As student and graduate I have been engaged with medicine now for fifty years. The great achievements of this period have been the establishment of some broad principles which explain the origin of various groups of important diseases, and the practical application of these principles to the management of diseases in these groups. The first and the most important of these is the recognition of the bacterial origin of supuration and of infectious diseases. Bacteriology was just becoming established 50 years ago. Aseptic surgery was feeling its way along; its modern technique and triumphs were to come. Our precise knowledge of the causes of infections has come in this period.

We had had vaccination for smallpox for a hundred years, and diphtheria antitoxin had been suggested but was not established. All of our definite knowledge of immunology and nearly all of its practical applications have come within my professional experience.

Now we are beginning to make progress in diseases outside the realm of the infections, in the metabolic and degenerative diseases. No one has yet furnished the key to these as Pasteur did to the infections; it is altogether probable that there are many keys that must be found before we can unlock all their secrets; but in these diseases we have had achievements in the last fifty years that are equally startling and almost as significant. I have seen the development of our knowledge of the endocrines, of the vitamins, of allergy, to refer only to fundamental principles which have opened up new fields in medicine.

I have seen the miracle of the control of cretinism, the efficient use of thyroid substance in the treatment of other thyroid disturbances, and the rational use of our knowledge of the internal secretions in many of these diseases.

We have just learned the role in nutrition of those curious substances, the vitamins. We have finally gotten a comprehension of the reasons for food deficiency diseases, and an ability to put this knowledge to practical use, which has given us control of such diseases as rickets, and greatly added to the well-being of children.

We have gotten an entirely new pathological principle in our knowledge of allergic reactions and a clearing of our knowledge of important pathological processes.

These things are increases in our fundamental knowledge. They are not simply uncoordinated new facts of knowledge, but fundamental concepts that involve groups of important diseases. It is not for me to expatiate to you upon the numberless diseases which these new concepts have cleared up and given us new capacity to control. But let me say at least that, for a man without the old experience, it is hard to estimate what the contrast in our knowledge then and now means in terms of health, comfort, and prevention of death. None of us can appreciate the tortures from which man was freed by the introduction of vaccination and anesthesia; it is equally as hard to realize today the relief from suffering which the discoveries of the last fifty years have produced. The agonizing scenes of children's deaths that diphtheria was always causing, the terrible toll that typhoid fever continuously took, the death and the suffering that were the inevitable lot of man that surgery now prevents, the terrifying epidemics of yellow-fever

and cholera that occurred even within my experience—the suffering and the disaster that were then the inevitable lot of man, cannot be imagined today. I have myself seen overcrowded trains of weary, terrified, anxious-faced refugees fleeing from yellow-fever. I remember the terror of a cholera epidemic in my boyhood; I went out of Hamburg only a week before an outbreak of cholera that closed the German ports in 1892, and demoralized North Germany. I have walked the street, unnerved by the scene of a baby's death from strangulation of diphtheria of the larynx, the old membranous croup, which I was powerless to prevent. One must have had personal experience of these horrors to realize what medicine has done in the last fifty years.

What of the social and civil changes in the medical profession in this period?

First, in the doctor himself. In spite of the frequent statements to the contrary, I can remember no correspondingly great change—certainly no great adverse change—in the physician's relation to his patients and his community. He is immeasurably more efficient, and his esteem has not lessened. We hear that specialism has increased and the province of the family doctor been reduced, and there are dire forebodings because of this. I have not seen the change to the ominous extent that we speak of. Fifty years ago I can recall competent specialists in practically every field in which we have them now, except in those departments of knowledge, such as roentgenology, which did not exist then. The specialists played about the role that they do now, and they were, so far as I can see, neither more nor less prosperous and respected then than they are today. Indeed in our thoughts on specialism, as on a good many other subjects, we are probably not seeing facts in correct historical perspective. The times are not as good as they used to be, and never were.

In short, then, it is my impression that in the relations of the individual physician to his patients and the public, there has been little change produced by rapid progress of events within my memory. And I am glad of this for the traditional relationship between the doctor and his patients has long since arrived at a state where it was wholesome and useful and pleasant; as satisfactory as any human relationship, out-

side the family, in this frail and contentious world.

And I could say hastily, in passing, that I can see no appreciable change in the economic condition of the physician in comparison with others—whether specialist or general practitioner—when it is considered in relation with the varying economic conditions of different periods.

But I am not equally blind to the changes that have come in the practice of medicine in its public and civil relations. Governments have stepped into the field of medicine in ways that were for the most part unexpected and unknown fifty years ago. These interventions have not been altogether unsound or undesirable. The common problems of hygiene and sanitation, of public health, are governmental problems for at least two reasons: they are problems which concern all of the people; and only government have the authority, the resources and the extensive machinery to carry them out on the necessarily large scale. In matters of health which concern the people as a whole we have seen great achievements in the last fifty years.

In the individual care of the sick, the practice of the last fifty years has been that community units, and sons and daughters, and others to whom they might properly look for support, have assumed the burden of dependents. It is the natural and sound course, to put these duties on those to whom they naturally belong. The lot of the dependent, the incompetent and the derelict has never been a happy one; after they have reached the age when they should take care of themselves, nature makes no provision for their preservation either among men or animals. And it is probable that no way can be devised which is better than leaving the responsibility for dependents to those who have direct association and family, personal or community interest in them. From our experience with the personnels of bureaus, which inevitably assume the autocratic attitude of those who have the final word in matters in which they control service, certainly there is no reason to believe that dependents will be handled with more human sympathy or efficiency from the national centers of government, or by employees, entrenched in their positions behind politics or civil service. There has been a growing movement in this direction whose momentum has alarmingly increased in

the last few years, and it has produced a situation which has dangerous possibilities for the good of medicine and those it serves.

Now what of medicine in the next fifty years? First, in its scientific, and, then, in its practical functions.

I have no impulse to make specific prophecies. I do not know when we will find the cause of cancer and its cure. I hope some day we will find a method of treating its tumors with the same assurance that we can now cure the tumors that occur in syphilis. I do not know when we will gain control of the degenerative diseases, of the diseases of the cascular system that now take such a toll of useful people, how soon we will gain victory over many infectious diseases whose causes we know or do not know, of that universal nuisance, the bad cold, of that captain of death, pneumonia, or of such mysterious terrors as poliomyelitis.

But this much we can say, with the advances in medical knowledge and technique in the last fifty years, added to the knowledge of anesthesia which we already had, we finally find ourselves in position to do experimental research under conditions of scientific precision. Thus we are now in position—if temperamental opponents will leave us alone—not only to study with accuracy all of the problems of disease, but to advance our knowledge of the normal and abnormal processes of the body to limits hitherto impossible. There are still, of course, many diseases to be explored, we have still even many infectious diseases that hide their secrets from us, but we have the immeasurable advantage now of knowing what their problems are, and how they are to be approached, and we have the technique for their accurate study. We have reached a favorable strategic position for the fights against diseases; we can wage them intelligently, and we have, as we have always had, the spirit to attack them manfully.

Dr. Langdon Brown, the successor of Sir Humphrey Rolleson at Cambridge, said recently, (*B. M. J.* Jan. 4, 1935, p-1), "One Hundred and Fifty years ago the need for the collection of data was preeminent. Today there is at least an equal need for the data to be assembled and co-ordinated by careful thinking." We are now in the period of synthesis, where by inductive reasoning from our great accumulations of

knowledge of facts we can, from time to time, arrive at fundamental generalizations. It is this situation that accounts for the revolutionary progress of the last fifty years. We are probably now in the midst, if not in the beginning, of this period, and it is probable that many more generalizations with widespread applications are to be expected.

Our present advantageous position for the study of the problems of disease and our recent great victories in new fields are the most hopeful indications for the future. Who would have expected, for example, the sudden control that we have gotten by simple measures of such obscure and hopeless diseases as diabetes and pernicious anemia, of rickets and hypothyroidism? Such successes in the difficult field of metabolic diseases give us justification for the greatest optimism.

The next fifty years ought to be as rich in scientific and technical progress as the last fifty has been.

How fast or how slow will be the future progress of medicine will be influenced by many factors that are beyond medicine's control. It cannot progress much faster than the physical sciences in general. And the progress of these, along with that of medicine, is bound up with the state of society.

For the progress of science requires enduring peace and security for its workers, material resources, and time and opportunity for continuous study and research. These are the products of economic security and intellectual independence. If medicine is to do good work, either in scientific progress or practical usefulness, it must have these; it must offer attractive opportunities to vigorous men who are brought to it by the attractions of independent careers of usefulness in practice or scientific careers.

I know that claims are being made of the advantages to medicine under the new communistic and other forms of autocratic governments that have lately come into existence. I can only speak of conditions in my own specialty. They are definitely deteriorating under these new orders. Medical men are striving in a way that is pathetic to continue their professional activities, but, judging by the evidence that I see, they are trammelled, dispirited and working less efficiently than formerly.

There is more reason for anxiety about the future of medicine in its social and public relations. In a democratic society there is always a tendency to penalize the efficient and prosperous for the benefit of the weak and dissatisfied; to take from the thrifty and give to the thriftless; or to consider it as the socialisticly minded do—to make those who have taken care of those who have not. In the last three years we have seen a rapid movement in this direction that few could have foreseen. We are now in a welter of radical socialistic proposals, and among the first forms of social service always chosen for appropriation is medicine. This is inevitable; for sickness and injury are a source of anxiety to all, the victims have universal sympathy, and every proposal, therefore, to make the state assume responsibility for its individual members would first apply to medical service. It does not matter that medicine is more anxious than anyone else to meet its social and public obligations, and quite as able and more unselfish in doing so. No matter how it points out the sound objections to its socialization, the movement toward it is strong, and will undoubtedly produce effect. That movement we must reckon with and oppose in all of its unsound features.

What of the future of the individual practitioner?

Broadly, I have no doubt that his position will be relatively as good, in comparison with other similar groups in the community, as it has been in the past. His usefulness is too great, he is too thoroughly established by tradition in public confidence to lose the relative advantage of his position, come what may.

Whatever changes may occur in the practice of medicine, I can see nothing to cause the disappearance of or to change greatly the relations of either the specialist or the general practitioner to society.

Because of the enormous elaboration of the details of medicine, as of other sciences, the specialist has a field of usefulness in practice and in research. There has been an increase in specialization in the last fifty years, and yet I do not believe the trend toward specialization has been as great as has been assumed. And I see no reason to believe that this trend will continue to a degree that specialism will occupy a larger place in the profession than it does now. I have seen

the statement lately, from a wise colleague, that specialists of an earlier generation were stronger men than those today. That is not my opinion. If I can judge, their character is as good as it ever was, and their competence better. So that, as I see the future, we have reason for believing that the career of the specialist will remain attractive because he is useful. But I believe that whatever trend there is toward specialism has pretty well reached its maximum.

In the same way I think, contrary to the opinion of some of my most esteemed colleagues, that the prospect for the general practitioner is relatively good; I mean by relatively good, good in comparison with that of the specialist and in comparison with that of members of other higher callings. And the best ground for my belief in this is that, in spite of the supposedly strong trend toward specialism, the general practitioner has held his own. And he has held his own because his field has attractions which draw strong men to it, because he supplies a social need that no one else can and that the public recognizes. I see no validity in the arguments that medicine has become too complex for the general practitioner, and that it does not offer today opportunities for scientific exercise of the intellect that the specialist and the laboratory and the hospital doctor have. It seems to me Sir James MacKenzie, in his book "The Future of Medicine", has convincingly answered these arguments. Whatever difficulty has been caused by the increasing complexity of medical knowledge has probably been more than offset by simplifying and rendering practice easier and more effective, whether in diagnosis or treatment. New methods of diagnosis have lightened the labor of many perplexing situations. X-rays, the antitoxins and other therapeutic and diagnostic sera, insulin, thyroid extract and other glandular substances, liver substance, the vitamins—these have made practice simple and effective in diseases not only formerly baffling, but as always where we are in ignorance, troublesome and discouraging in their effects upon the physician. And as we get further in knowledge of this sort, practice will become still easier and at the same time more useful to the patient and more satisfactory to the physician.

As to his intellectual opportunities. No one else has the opportunities for clinical research that the family physician has. As MacKenzie has so forcefully pointed out, the man who is engaged exclusively in research, even though it be clinical, whose practice is confined to the hospital, who sees his patients only in particular illnesses, the laboratory worker, the specialist, are not properly placed for the full study of most diseases. To know the problems of diseases completely one must know patients completely, know all the facts of their personal equations, their environments and lives even before disease begins. To fulfill his highest function the physician must be in position to forestall disease and to see its earliest manifestations. MacKenzie, who has probably done more in increasing our knowledge of diseases of the heart than any other man of our day, is himself a sermon upon this topic. So impressed was he with the importance of these facts as they developed in his experience in thirty years' practice in a small community, that after becoming a great consultant in London, he returned to a town, where he could study disease with a fuller knowledge of all of the factors effecting it.

The general practitioner is the only man who has this opportunity. He need not be embarrassed by the lack of the elaborate machinery of the clinic, or the institute. He needs little of that. In most of his problems the greatest instrument is what MacKenzie calls that "necessary instrument of clinical medicine, the trained physician." (p. 185). Clinical knowledge, particularly clinical diagnosis, is still the most important part of medicine, and the expert clinician the most valuable practitioner. The laboratory has its field, but furnishes no substitute for him.

We hear much of the relative lack of rewards of the general practitioner. Even in material rewards I believe he is not less favored than the specialist. For every outstanding specialist today in the big cities or the small ones, I think I could name his equal in material success among practitioners of general medicine and family doctors. In all ways, I believe, his rewards are as great. The rewards of life are material, intellectual and emotional. As to intellectual and material rewards of the general practitioner, I have already indicated my views.

In emotional rewards—and, be as hard boiled as we may, they are important—his life is rich. His usefulness is great and his influence often unique in his community. His value is recognized. He has it brought home to him in innumerable experiences—that best of all thoughts—that he is living a worthwhile existence, and is entrenched in the esteem and affection of those he serves. The specialist, in his casual associations with his patients, has not this experience in anything like the same degree.

The clinic, the corporation practicing medicine, the panel, the *krankenkasse*, more intervention of government in personal practice, may all come; and still I believe that the advantages that lie in the personal practitioner will insure that he will not disappear—least of all the family doctor. Some of these new forms of practice we already have. Judging from my experience with patients, they only use them now as, what they regard as, necessary second choices.

To summarize then. Given stable economic and social conditions medicine may look to the future with assurance. There is every reason to hope for its continued progress in knowledge and usefulness. If social and economic conditions do not remain stable, medicine's position is probably as secure as that of any group in the community. In this situation it is our duty to strive for sound social and economic conditions for the practice of medicine. It is not for me to discuss how we shall do that. This much I can say, individually we are inefficient in such a fight; we must do it through organization. Fortunately we have the organization in our national society which is representative of the physicians of the entire country. It and its component societies need the concerted support of the members of the profession; not sporadic support blinded by personal and local interests, but consistent support of enlightened, sound policies for the general good. With that, under vigorous leadership, we can present effective resistance and minimize damage. We can offset the influence of other organizations and groups that, for their own purposes of one sort or another, are willing to cripple medicine as an independent profession. The situation is difficult, but it is not unknown or even new in the experience of the American Medical Association. That organization has had

to meet difficulties from its foundation. It has always found in its emergencies sound public-spirited leadership, and the whole trend of its course has proved to be statesmanlike and in the interests of the profession's and the public's good. We have thrived on difficulties in the past and we have come out more vigorous for having had them. We may not escape unscathed from our present ones, but I am firmly of the conviction that we will come out undefeated, and that medicine will continue for the next fifty years, as it has for the last fifty, as interesting, as vigorous, and as inspiring a calling as men follow.

MEDICAL ECONOMICS

JAMES G. CARR, M. D.,
EVANSTON, ILL.

Within the past twenty-five years the practice of our profession has been almost wholly changed. Discoveries in the basic sciences, applied to the practice of medicine, added a multitude of diagnostic and therapeutic procedures. One result of these advances, with simultaneous social and economic change, has been to significantly alter the relationship of physicians to each other and to the public. Upon the part of the physician, emphasis came to be laid upon accuracy of diagnosis and precision of treatment. These came to be regarded, by physician and patient, not as important adjuncts to the personality of the doctor, a foundation upon which the experienced physician bases his practice, but as the ultimate basis of medical efficiency. The patient learned to look upon medicine as a science. Diagnosis and therapy tended to standardization. The public has noted the success of clinics, large and small, and has followed our own lead regarding the technicalities of specialism. The advantages of group medicine and mechanical aids to diagnosis have been exaggerated, and to many of our fellow-citizens these methods have been magnified because of their own inability to secure them. The present agitation for change in medical practice is partly due to our own emphasis upon the mechanical aspects of our calling. For medicine is not yet an exact science. The practice of medicine is the application of medical knowledge, not to a disease, but to a human being, through the me-

dium, not of a machine, but of another human being.

Long before the crisis which engages us now, these maladjustments became apparent. It is not necessary to quote statistics, easily available as they are, for you and I know that ten years ago, in the midst of prosperity, many patients were denied the privilege of important, often essential, technical procedures of diagnosis and therapy, because of the expense involved. The high cost of medical care was a frequent subject of discussion. Finally a definite move was made to provide data upon which plans might be based for a fairer distribution of medical service, at its best.

In 1927, in Washington, during the annual session of the American Medical Association, an organization was planned to study the cost of medical care. Thus arose the committee about which we have heard so much. This was the result of an original conference which was attended by some sixty representatives, physicians, health officers, social scientists and representatives of the public. The funds necessary for the work were provided by eight foundations. After more than five years' study the report of this committee, which consisted of fifty members, including fifteen physicians in practice (other than those engaged in public health work and in public life) and two dentists, was presented in two main sections, majority and minority reports.

The majority report was signed by thirty-five members, including eight physicians in practice. In addition to recommendations regarding professional education, and recommendations for the study, evaluation, and coordination of medical service, this report contained, in brief, these features:

1. "The Committee recommends that medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office and hospital care.

2. "The Committee recommends the extension of all basic public health services—whether provided by governmental or non-governmental agencies—so that they will be available to the entire population according to its needs.

3. "The Committee recommends that the costs of medical care be placed on a group payment basis, through the use of insurance through the use of taxation, or through the use of both these methods.

"The Committee defines insurance as a procedure by which a group of persons pay uniform sums of money to meet the costs of medical care' and also 'insists that there shall be a clear-cut separation between insurance to meet the costs of medical care and insurance to cover a portion of the wage loss due to illness.'" Private insurance companies in connection with these plans are decried. "All or nearly all practicing physicians and dentists of the area served would eventually be on the staff of the single center in a small city or the several centers in a metropolis."

Elsewhere it is stated: "Voluntary health insurance has been succeeded by compulsory insurance in most of the countries of western Europe. The use of the state's power of making membership in a sickness scheme obligatory for large groups of persons, increases the population served and also reduces the administrative cost of securing and retaining members. The Committee recognizes that the distribution of the costs of medical care will not become widespread in some communities or for certain sections of the population in many communities, unless there is legislation which makes the distribution of these costs compulsory."

In another connection we read that—"There is nothing in any way mysterious in the relation between a physician and his patient. On the therapeutic side it is capable of completely objective analysis. As to those phases which are not strictly medical, it is of a piece with all satisfactory human relations involving as they do mutual patience, sympathy, understanding and confidence."

Throughout the report there is reference to the importance of maintaining the general practitioner and the personal relationship between patient and physician. No satisfactory plan for the attainment of this objective is presented. The report has been described as "Utopian" which is not unfair. The committee pays the medical profession a high compliment in assuming that groups of men brought together merely because they are engaged in the same line of work in a single community will work together in peace and harmony. Some reference is made to the possibility of strife concerning control or domination of the groups, but the constant friction about work which is not capable of being standardized, concerning which minor differences of opinion

will often arise, work which must be carried out upon the personal responsibility of one individual whose judgment may not be approved by his colleagues; the inevitable tendency of standardization to suppress individuality, the loss of morale, so common where individual initiative is destroyed; the tendency to finally accept established methods instead of improving them, which means the neglect of research—all are ignored or minimized as possible factors in impairing the efficiency and usefulness of a system of medicine provided by compulsory insurance. The probability that the practice of medicine will become less attractive to young men of talent must also be taken into consideration if adequate medical care is to be provided to those who follow us. Finally, the blight of politics in any form of governmental control is a threat of the first magnitude.

The Minority Report is signed by seven physicians in practice, one in the service of the American Medical Association, and one layman. This group opposes the plan of community medical centers, criticises the attitude of the majority toward contract practice: "The evils of contract practice are widespread and pernicious"—and opposes health insurance, voluntary and compulsory. The recommendations include restriction of governmental activities in the practice of medicine, expansion of governmental care of the indigent to ultimately relieve the profession of this burden, a plea that united attempts be made to restore the general practitioner to the central place in medical practice. The corporate practice of medicine financed through intermediary agencies should be vigorously and persistently opposed. Further recommendations include the trial of methods which may be employed without interfering with the fundamentals of medical practice, the development by state or county medical societies of plans for medical care, and the restriction of governmental activities to the care of veterans suffering from bona fide service-connected disabilities and diseases, except in the cases of tuberculosis and nervous and mental diseases.

At the Milwaukee session of the American Medical Association "The House of Delegates unanimously approved in principle the Minority Report of the Committee on the Costs of Medical Care, and urged that the Board of Trustees

of the American Medical Association, in co-operation with its constituent bodies, conduct an intensive campaign to disseminate this point of view among the medical profession and the public."

The medical press generally opposed the Majority Report. In some instances the report was printed without comment, apparently pending action of the respective state societies. The *Journal of the Medical Society of New Jersey* made this statement: "We have, throughout our preparation of these documents, carefully avoided any expression or indication of personal opinion. Our object has been, to supply you with all important facts."

Here and there divergent opinions were expressed. Shortly after the appearance of the report, an editorial appearing in the *New England Journal of Medicine* contained this sentence: "There is abundant evidence that the economics of medical practice are in an unsatisfactory state, and that constructive intelligence coupled with imagination must plan and experiment in this field of service if better conditions are to prevail." The *Nebraska State Medical Journal* for January, 1933, commented editorially, thus: "Our first reaction to the report was that it would exert a tremendous influence in favor of state medicine; mature later reflection has modified this considerably. Few physicians are in favor of state medicine as found in European countries. Most physicians see the need of some better method of caring for the poor and the white collar class. . . . Is it not possible that out of this study and from the recommendations made may develop a policy entirely wholesome to the profession and the laity?"

The approval of the Minority Report given by the American Medical Association implies approval of experimentation in the field of medical economics within certain limits. The Minority Report includes a recommendation that careful trial be given to methods "which can be rightly fitted into our present institutions and agencies without interfering with the fundamentals of medical practice," and "the development by state or county medical societies of plans for medical care." After stating eight safeguards which must be observed in the development of such plans, it is stated that "This

group recognizes the value of trial of plans based upon the above principles by county medical societies." These recommendations, upon the action of the Council at the Milwaukee session, became the accepted policy of the American Medical Association. The essential feature in the program of our national association is the retention of medical control over any system designed to change or significantly modify present procedures. Already plans have been put into effect in various localities in attempts to solve the problem of medical care. Only recently the *Springfield Republican* commented editorially on the "Detroit Plan": "There will be wide interest in the progress of the new 'Detroit Plan' for medical service, which, after seven months' trial in that city, gives promise of much usefulness." . . . "Under the Detroit Plan five professional groups—physicians, dentists, nurses, pharmacists, and hospitals—are co-operating through representatives at the headquarters of the Wayne County Medical Society, chief sponsor of the plan." The Milwaukee County Society projected a plan for a type of sickness insurance which attracted attention, but was not put into effect. According to Dr. Fishbein—"Contract practice, industrial practice, hospital insurance plans, university practice, lodge practice and group clinics are a few of the many forms of medical care now available in various communities."

According to a statement of W. T. Foster, made early this year: "Since the publication of the Report of the Committee on the Costs of Medical Care, the State Medical Society of California has approved the plan (the Majority plan) and group practice has spread all the way from Los Angeles to Seattle. In Portland—a very conservative city—170 doctors are now operating under the plan which we advocate: in Seattle over 300 doctors."

The Committee of the New York State Medical Society to consider the final report of the Committee on the Costs of Medical Care, reported against health insurance, but a recommendation to provide a plan of hospital insurance "To lessen the burden of nursing and hospital care for the wage-earning group, a group of people below the comfort-line" was approved by the House of Delegates.

In February, 1933, the *West Virginia Medical*

Journal said editorially: "We do feel that in some sections where there is an unquestionable demand for some health insurance plan, the doctors and hospitals would be wise to go into the matter openly and frankly and work out a satisfactory solution before someone else works out an unsatisfactory plan. There is no reason why any county society should hold aloof from such a move."

In 1933, at the Annual Conference of Secretaries of Constituent State Medical Associations, Dr. F. C. Warnshuis of Grand Rapids, reported the Survey of Michigan's Medical Services and Health Agencies; his paper contains these words: "We are not in a position to approve any insurance plan. We are fully cognizant of the inherent dangers. We realize that some plan must be devised to enable the lower bracket income persons to obtain adequate care. We are firm in the belief that any plan eventually approved must have the following safeguards: free choice of physician, benefits to be those of medical care only, no third party promotion profits, and control vested in the profession. Whether a plan so safeguarded and efficient can be developed is now receiving intensive consideration."

In view of our close relationship to our neighbor, Canada, the changes in the practice of medicine there are of interest to us. "In November, 1932, the Executive Committee of the Canadian Medical Association instructed 'that the Committee on Economics be authorized to prepare a plan or plans for health insurance, and that these be passed to the various provinces for their consideration, criticism and suggestions. This work is well in hand. In 1933, thirty-seven rural municipalities in Saskatchewan were being served by a full-time municipal physician.' . . . "The British Columbia Medical Association presented their views to the Royal Commission on State Health Insurance . . . they advocate a system of compulsory contributory state health insurance, providing a complete medical benefit, with freedom of choice of doctor, all legally qualified medical practitioners being eligible to participate in the scheme."

The Majority Report contains much discussion of European schemes for sickness insurance, and reprints the conclusions of Simons and Sinai, four of which read thus:

"1. There is practically no important opposition to the principle of health insurance in any country where it now exists. There is criticism in plenty and constant effort to change details, but no agitation for repeal.

"2. The National associations of physicians and dentists have over and over formally approved the provisions of health care to the lower income classes through insurance.

"3. There is practically unanimous agreement that the insured receive better medical care than they did before they were insured.

"4. There is wide variation in professional incomes under insurance: but these will average at least as high and probably somewhat higher than they were in private working-class practice before insurance."

Many and widely varying opinions might be quoted concerning sickness insurance. Evans, writing from Germany, says: "there is little doubt that an insurance system with its legal intricacies and opportunities for unfair exploitation, and with the vast organization which is necessary for its control, is more expensive for the community than a system in which the relations between the patient and practitioner are direct. . . ." One German writer says of the system in his country: "Insurance dishonesty is widespread, extends even to self-mutilation and infects everything that comes within its range. This will remain until the wings of the communistic angels begin to sprout between the shoulder blades."

The *Bulletin of the American Medical Association* for June, 1934, contains this summary regarding sickness insurance:

"1. It is not a measure of prevention against disease. Even the most enthusiastic defenders of the British system admit its failure in this respect.

"2. It does not meet the problem of caring for the indigent sick.

"3. Advocates admit that insurance is least needed for minor diseases; but once established, the major share of its resources are largely directed toward the care of those least in need of assistance.

"4. Insurance does not reduce the amount of disease or perceptibly affect mortality.

"5. There is no evidence that insurance in any country has reduced the costs of medical care."

The Committee of the New York State Medical Society to consider the Report of the Committee on the Costs of Medical Care reports: "It has been manifestly apparent whenever compulsory health insurance has been put into practice that 1. The mortality has not decreased; 2. The average days' illness has increased from

seven to seventeen days; 3. There has developed a huge amount of industrial neuroses; 4. Malingering often reaches such extensive proportions as to call forth governmental reactions; and 5. There has been no corresponding increase in preventive medicine."

Henry Sigerist, a German, now Professor of the History of Medicine at Johns Hopkins University, writes: "The German sickness insurance is far from perfect. It could be greatly improved, as no doubt it will be. Deficient as it may be, it has served the people's health well for half a century, and no European country that has adopted a sickness insurance plan could ever afford to abandon it."

In spite of the widespread criticism of the profession, most of us have clung to the belief that the public desires the retention of the private physician. There are evidences that we may not count too confidently upon the disposition of the community to resist state medicine. The public was restive about the cost of medical care at the height of our prosperity, and the desolation of the past five years has probably not led to a lessening of that attitude. To the man who formerly could afford the best of medical care, but now can really afford none, our regard for the traditional ideals of the profession may savor of smugness and self-interest. The far-flung activities of various groups in their opposition to present medical practice has intensified this feeling and aroused many people to criticism of the profession and demand for change. Dr. William H. Ross, a former President of the New York State Medical Society, says: "Apparently, the public has lost its fear of experiment in government. Social control over industry seems inevitable, and social control of medical services may be the next step if the organized profession persists in its stand-pat position instead of undertaking leadership in the formulation of plans to provide medical care for those who have not means enough to pay for it."

There is a lack of proper medical care for large portions of our population. The care that is given to the indigent in such abundance is far from satisfactory. Many of the people now accepting such care recall the days when they were served by private physicians, and resent the type of medical attention provided and the associated implications of indigency. Those

who have known better times may now readily agree that private practice is an injustice to the community in general, because it supplies better service to the man with means to procure it. If the present chaotic economic condition continues, failure on our part to meet the needs of these people for adequate medical care may be responsible for increasing agitation in favor of some form of state medicine.

There now exists in Chicago an organization for the provision of medical and dental care, which is an open challenge to the private practice of medicine. Organized some two years ago, directed by an experienced administrator, manned by a group of capable and well-trained young men, their bridges burned behind them—one obvious purpose is to demonstrate that the methods of modern business, including advertising, are applicable to the practice of medicine. This group, now outside the local society, defying our organization, is attracting a large number of patients and rendering service at very low prices. Prior to the action of the Chicago Medical Society it was made clear that the organization would not abandon lay advertising. The Society representatives were rightly adamant in supporting the time-honored and essential ban on such advertising. The continued activities of this organization have created unrest among physicians. If the organization continues its present success, it is likely that other organizations will arise to offer competition, and the consequent rivalries may wreck profits for all. In the meantime, there is unrest amongst many of our members. Similar groups may be started by other physicians, partly justifying themselves upon the basis of the Society's failure to protect them. Younger men may be tempted to find their place in practice in such a way. The situation may be aggravated within a few years by the increasing number of graduates in medicine, who may, unless conditions notably improve, find the opportunities for even a living practice steadily diminishing.

On the other hand, conditions are not altogether in favor of the success of this undertaking. There is no provision for medical attention in the homes of patients; it is not probable that attractive salaries can be offered as the men now employed grow older and more experienced; the enthusiasm for a new venture may be

dimmed by the outlook for a stationary professional status. The very intensity of criticism now directed at the institution stimulates good work on the part of those involved; the routine, the lack of opportunity to advance in a material or professional way, the necessary restriction of research activities, may dim enthusiasm. If such organizations multiply they are likely to affect materially the practice of medicine, as now conducted. One reason alone justifies this statement: the pay clinic is remunerated for its services: fees are collected promptly and indigents are not attended. With such a system the private physician, often giving his services free, and remaining unpaid for much work, presumably lucrative, cannot compete.

The provision of medical care through dispensary service has been the source of much discussion, often acrimonious, through many years. Since the onset of the depression so many people have been unable to pay for medical service that the dispensaries have been fairly overwhelmed. These patients are so obviously unable to pay that criticism, formerly directed at dispensaries as responsible for competition with the private practitioner, has almost been stilled. The problem has not been settled, it only presents different aspects. Now the private practitioner has lost his clientele because of the latter's poverty, to fellow physicians who were attending dispensaries for the purpose of teaching. For four years this latter group has found the teaching hampered by the immense increase of patients who must be treated. The private physician has lost his patients and his income therefrom; the physician in the dispensary has the patients, but without any remuneration. It is a striking commentary on the public attitude toward the medical profession that for three years this situation went practically unchallenged. For these patients, food, clothing and shelter were provided; these commodities were paid for. The physician alone was unpaid; in the public mind he gives only his services. In New York State the "State has assumed the burden of supplying medical service to the destitute. Both law and the decisions of the courts have recognized four necessities of life, food, clothing, shelter and health. The State must purchase this service from those who have it to sell. The doctor who donates his services to

the destitute makes a gift to the taxpayers rather than to the poor."

The second paragraph of the Minority Report recommends that "Government care of the indigent be expanded with the ultimate object of relieving the profession of this burden." Rules and Regulations No. 7 of the Federal Emergency Relief Administration issued in 1933 provided "A uniform policy with regard to the provision of medical, nursing and dental care for indigent persons in their homes, shall be made the basis of an agreement between the relief administration and the organized medical, nursing and dental professions, state or local." Elsewhere occurs this statement: "When a program of medical care in the home for indigent persons has been officially adopted, participation shall be open to all physicians licensed to practice medicine in the state, subject to local statutory limitations and the general policy outlined in Regulation I." For some reason, the Relief Administration in the Chicago area has not provided for the physician of the family's choice to take advantage of this opportunity to earn a pittance, but has confined this practice to a group, large indeed, but not including all those who are entitled to such recognition, of some 1,600 physicians who registered for the work. As noted above, the obvious intent of No. 7 is that "participation shall be open to all physicians."

It ought to be relatively easy to combine a system of care for the indigent as outlined in No. 7 with dispensary co-operation to the advantage of all concerned. Allowing the needy to be treated at home by their own physician would spare these people many long and tiresome trips and much waiting on benches, would materially lessen the demands upon the dispensary, and would permit many physicians to earn some much-needed cash. The dispensaries could be used as consultation centers at the request of the physicians, and still would be supplied with all the patients needed for clinical teaching.

In July of this year, \$97,065 was paid to physicians (of the 1,600 registered) in Cook County under the provisions of Regulation No. 7. During this month there were 142,252 families "on relief." Sixty-eight cents per family (and the families are computed as averaging slightly over four) as a monthly charge for

medical service in so large a group is indicative of excellent health if any large proportion of the sick were referred to their family physicians. It is not unjust to suggest that work which should have gone to the private physician under the provisions of Regulation No. 7 was largely cared for in dispensaries. If so, the intent of Regulation No. 7 was defeated: work intended to relieve the needy physician and to help him to retain his hold upon his clientele was diverted from his hands to free agencies. The physician carrying on under trying conditions is entitled to fairer treatment. Unjust treatment will, in the long run, impair the efficiency of many men, discourage and dishearten them, and may lead eventually to a situation in which the medical needs of the community cannot be met. The executives of the Social Service Agencies and the numerous subordinates are paid.

Fundamentally, the opposition which confronts us and challenges the present practice of medicine is based upon the fact that large groups of our people have not been provided with adequate and satisfactory medical care. This lack was accentuated by the depression. Advantage has been taken of the situation by those opposed to the private practice of medicine to conduct an intensive agitation in favor of radical change. We are faced with the problem of providing better care for the people, as a whole, or of submitting to change in methods of practice, more or less radical. This will be done by us, with or without us, or even in spite of us. Large numbers of people now doing without medical care or accepting charity have broken their ties with a family physician. It is for us, with open minds and a willingness to accept change, to devote our attention to retaining the good will of the community (which is our most valuable asset) while preserving the essentials of our methods of practice.

If we permit the necessary reform to be directed by men who charge us with selfishness, the changes may be radical indeed. The mood for change is everywhere. Radical changes in political and business lines have been carried through with popular approval, because the public believes the advocates of these changes are unselfish and disinterested. If we permit the lay advocates of medical change to array themselves in like garments and take their position

as unselfish leaders, while we remain only in opposition, we will shortly find ourselves ignored in the development of any plan.

An appeal to politics for special enactments to protect our system of practice or for special favors of any kind will only involve us in more discredit, and whenever the politicians consider the situation favorable, in further exploitation of the profession. It is to the credit of the profession that our political activities have included the promotion of public health, the improvement of medical education, the protection of the community from ignorant irregulars and patent medicine vendors, the establishment and improvement of sanitary measures, the care of certain chronic diseases, preventive measures against blindness, and various other services, but our position will be different if we ask the retention of the present status of the profession merely because we want it. Probably no single fault of our form of government is more conspicuous than the tendency of organized minorities to support evil men on the single issue of a minority interest. Many of us will not accede to vote for this or that man merely because he has made certain promises to the medical profession. Let us not forget that our position in the community is not due to our education or ability, the schools we come from or the way we live. The physician is honored for his traditional disinterested devotion to his work. If we put the emphasis on the economic phases of practice, the public will take us at our word. Our disputes with the public will be settled upon the basis of an economic quarrel. Likely enough, the economics of medical practice as conceived by economists, sociologists and legislators will be imposed upon physician and patient. If we convince the community that the acceptance of socialized medicine would destroy the morale of the profession and hamper medical progress, would take away the intangible interest in the patient as a person, what changes are made may be effected gradually, without radical upsets. We must make clear that our conviction of the superiority of service rendered by present methods of practice is based upon our experience with the sick, and our concern for the sick. No substitute for the personal relationship between the patient and physician will long prove acceptable.

True enough, the physician must live. From

his professional work he must derive his support. In doing his daily work, his daily living must be considered, but the public will grant these rights willingly if we can solve the problem of satisfactory service. If we continue to leave masses of people to more or less haphazard care, the medical profession will continue to suffer financially, and ultimately the problem may be solved in a way which will substitute for "Organized Medicine" an organization of medicine under the beneficent direction of the party in power.

In connection with the subject of political activities, passing attention may be directed to certain expressions of an organization devoted to the consideration of medical economics. There is a demand that "Unethical Medical Advertising be abolished by law"—in other words, that the legislature of the state enact a law forbidding any man to practice medicine in defiance of the trade association rules under which he and his fellow physicians have agreed to work. The state is asked to undertake to regulate the professional relationship of the physicians, which would be State Medicine with a vengeance. The second and third objectionable sections of the program are those which advocate "Patronage of the Friends of Organized Medicine" and "Utilization of Political Potentialities of Organized Medicine." If the first of these two, by any chance, refers to the possibility of organized attempts at a boycott, it cannot be too strongly condemned. The implications of the second have already been discussed. If we are misled into attempting to force our demands upon the community we are undone. Our one hope of maintaining for the public and ourselves the superior service and advantages of the private practice of medicine is to maintain the idealism of medicine, retain as our primary objective adequate care to all the people, and seek as individuals and as an organized body to make clear to the public that our aim is the public good: in all conscience we believe that a standardized mechanical organization of medical service will not provide adequate care, care which would be satisfactory to the mass of our people.

Sydenstricker says: "Under the American economic system the distribution of purchasing power is so unequal that even in most prosperous

years, and even if foresight and thrift were common characteristics of human beings, a very great majority of the individual families is unable to provide against these emergency needs for medical service." If this is true, our problem is difficult indeed. If medicine is now so complex, so dependent upon skill expecting large rewards and expensive mechanical devices, that large portions of our people cannot meet the expense of illness, it must be admitted that change is imminent, for large sections of our population will not submit to permanent deprivation of the means of health. The private practice of medicine is dependent upon the maintenance of our present economic system, with a fairer and wider distribution of wealth. Any material modification of the capitalistic system will, almost certainly, involve the profession in notable change.

SUMMARY

1. The private practice of medicine is best adapted to good service, principally because it stimulates personal interest in the patient and promotes a feeling of good will between patient and physician. It develops initiative and encourages medical advance.

2. Under the conditions which have developed during the past twenty-five years, private practice has not adequately served the needs of the community.

3. Changes in medical practice are inevitable; if comprehensive changes are effected, these will doubtless be incompatible with the maintenance of an ideal relationship between physician and patient, with consequent deterioration of service.

4. An intransigent attitude on the part of the medical profession is likely to consolidate and harden those who are anxious for change, and to irritate many who are not now opposed to the private practice of medicine. If such an attitude results in the loss of public confidence, radical changes may be expected. Our political organization, with units of cities, townships and counties, presents opportunities for experimentation with various schemes through which we may find our way to a larger measure of public approval.

5. It is the part of wisdom for us to guide rather than to obstruct. The mind of the public is now open to change; mere obstruction is obnoxious; let us keep in mind the purpose

which is the basis of all our work, help for the patient, and frankly consider many things, approving those which promise better service. It is our problem to convince the public that the medical profession, as now constituted, is capable of initiating and completing the adaptations and innovations necessary for the provision of adequate medical care.

2306 Ridge Avenue.

UNSATURATED FATTY ACID (Vitamin F) DEFICIENCY

MILDRED ONCKEN, M. S.

CHICAGO

Until recently, fats were not considered essential elements of the diet from an energy standpoint, but the work of Burr and Burr¹ and McAmis, Anderson and Mendel² manifestly discloses a new deficiency disease of far reaching nutritional consequence and of utmost importance to a newer medical interpretation of many symptoms heretofore vague and of unidentified origin.

Carefully executed experiments showed that if all neutral fat were excluded from the diet, but compensating amounts of fat-soluble vitamins at present known were returned in the form of essentially non-fatty concentrates, animals failed to grow properly. A syndrome of symptoms appear which include; scaliness of the skin (resembling eczema and dermatitis of unexplained origin and highly resistant to usual treatment); a swelling of the tip of the tail which eventuates finally in necrosis; a marked accumulation of dandruff in the hair on the back of the neck (not at all unlike the scales that accumulate in seborrheic dermatitis); alopecia; irregular ovulation in the female; failure to mate in the males; hemorrhagic spots and sores over the skin surface; hematuria, albuminuria and marked kidney lesions; cessation of growth; death. Animals in whom the deficiency is produced eat the same amount of food but drink twice the amount of water as normal controls, a symptom suggesting involvement of the posterior pituitary.

Before the animals reach a moribund condition, supplementing the diet with a small amount of linoleic or linolenic acids, or preferably both, results in the complete extinction of all the symptoms. Not only do these unsaturated fatty acids, and perhaps others, completely cure the

fat deficiency symptoms, but if they are contained in the diet they prevent the appearance of the deficiency syndrome.

Evans and Lepkovsky have confirmed the evidence for the deficiency disease,³ and refer to the essential unsaturated fatty acids involved in the prevention and cure as vitamin F.⁴

As is usual in the beginning study of newly opened nutritional investigations, conflicting reports appear. Sinclair⁵ agrees with the findings of Burr and Burr in so far as stunted growth is concerned but was unable to elicit the other symptoms. Graham and Griffith,⁶ Hume and Smith,⁷ and Funk, Caspe and Caspe⁸ obtained findings differing somewhat from those of Burr and Burr. We have found no difficulty in procuring similar results to those reported by Burr and Burr by following merely the instructions so clearly outlined by Hawk and Bergeim.⁹

Achard, Grigaut, Leblanc and David¹⁰ investigated the relation between infections and blood cholesterol. They reported that in infectious fevers, the blood cholesterol value first falls, then, on convalescence it rises to values which may even exceed the normal. At the same time, the iodine number of the fatty material of the blood falls at the beginning of an infection and rises with convalescence, but very slowly. It is recognized that the iodine value of a fatty material expresses its degree of unsaturate content, high iodine value corresponding to much, low iodine value indicating little, unsaturated fatty acids. Thus, in infectious diseases, the power of the organism to desaturate fatty acids, ascribed very largely to the liver, appears to be lowered. This was found to be true even in the case of such mild infections as common colds, according to Okey and Boyden.¹¹ In a laboratory with diversified interests carrying a total personnel of 63 people, it has been interesting to observe a rather prevalent incidence of common colds during the past season among the workers in all departments but one. The department having to do with the handling and study of linoleic and linolenic acids, having about a dozen workers who consume considerable linoleic acid preparations freely and for which they develop a natural liking, has not yet shown a single case of common cold, although in years previous to undertaking this special work, these same workers were as regularly visited with colds as those in the other fields of work in the same laboratory.

A routine examination of the blood on numerous laboratory workers has shown a drop from the normal in the iodine value of the fatty materials, this drop anticipating the appearance of a common cold by several days. Those in whom no attempt was made to correct this condition by feeding liberal amounts of linoleic and linolenic acid concentrate later developed colds; but on quickly restoring the unsaturates in the blood to their normal value, colds did not appear. To be sure, the observation is not sufficiently controlled by exhaustive experiment and study to warrant any sweeping generalizations. However, a closer study of the amount of blood unsaturates may do much to afford a therapeutic control of convalescence from acute infections. It may even point the way to the prevention of simpler infections, such as the common cold, and it is not impossible that the exanthems stand in some co-related manner with unsaturated fatty acid dyscrasia. At least, our observation has been profitable from the viewpoint of preventing the usual loss of experimental animals (white rats) suffering from "snuffles." In our colony of over a thousand white rats, we have this year prevented the appearance of "snuffles" by small doses of linoleic and linolenic acid concentrate.

Hansen and Burr¹² and Hansen^{13, 14, 15} have shown a very striking relation between the deficiency syndrome in animals and infantile eczema. First, Hansen has shown that infants in the acute phase of infantile eczema have a lowered unsaturated fatty acid content in the blood. Next, that linoleic and linolenic acid sources, such as linseed oil, corrects the skin condition clinically, while at the same time, the unsaturated fatty acids of the blood climb to a normal level. Hansen's work on infants followed the report of Hansen and Burr's work on the studies of the iodine absorption of serum in rats fed on fat-free diets. The original contributions should be consulted for further particulars. Hansen's work on eczema has received some measure of additional confirmation by the work of Cornbleet and Pace reported recently.¹⁶

It is interesting to observe the relative unsaturated acid potentialities of maizeoil, as used by Cornbleet and Pace, and other sources of linoleic and linolenic acid unsaturates employed by other investigators. The following tabular comparison is made from data furnished by Jamieson¹⁷ and is reliable.

TABLE 1

	Linseed Oil	Maize Oil
Iodine Number	178-182	124-128
(degree of unsaturation)		
Linoleic Acid	48.5%	39.1%
(prevents fat deficiency syndrome)		
Linolenic Acid	34.1%	Little,
(prevents fat deficiency syndrome)		if any
Oleic Acid	5.0%	43.4%
(does not prevent fat deficiency syndrome)		

Commenting editorially, the Journal of the American Medical Association recently discussed Diet and Relief.¹⁸ It referred to Mendel as pointing out that there are definite epochs in the evolution of diet. These epochs, the editorial states, are due partly through the introduction of new foods, to changing habits and methods of work, and to the sophistication of food substances which tends to deprive them more and more of such essentials as vitamins, mineral salts and the like. In this connection it is interesting to note a growing food custom that directly violates physiological knowledge, but about which very little is said even when brought to the attention of interests whose position is that of safeguarding public health. Reference is made to the increasing use of hardened or hydrogenated fats, and in many instances, of the replacing of fat by the nutritionally harmful mineral oil.

Writing on the nutritive value of fats, an important government representative and authority on the chemistry of fats and oils, but not necessarily an authority on the physiological values of these substances, points out that vegetable fats as a rule contain but small quantities of fat-soluble vitamins A, D, and E. After refining and deodorization, they are usually devoid of these vitamins. "In this respect alone" continues the author, "they are inferior to those which contain them. This deficiency is of no importance to those living under ordinary conditions, because they receive ample quantities of vitamins from other foods eaten. When desired, a vitamin concentrate from other sources can be added to fats or products manufactured from them, and this is being done in certain cases." When it is considered that refining, sterilization and further sophistication of foodstuffs is taking place at the same time in all other edible fields, the force of this statement is considerably lost. Hence the growing popularity of vitamin concentrates. But more important, the authority says nothing of the rising tide of saturated fat consumption in the form of butter substitutes,

shortenings and the like. Hydrogenation of fats renders them more indigestible, as Langworthy and Holmes¹⁹ proved; deprives them of important vitamins, and lessens their content of unsaturated fatty acids whose specific function it seems to be to prevent fat deficiency disease.

Leathes and Wedell (1909) performed rather conclusive experiments which point to the fat desaturating function of the liver. So important is this work in relation to our changing dietary as to merit reproducing verbatim:

"In order to account for the special position taken by the liver as a receiving organ for fat which has been transferred from the reserves, we should consider what is known of the subsequent history of mobilized reserve fat. It is certainly oxidized in tissues where energy is set free, and no less certainly it must be used for repair of the fatty components of the protoplasmic fabric of cells, including the myelin of the nervous system. For oxidation, it is possible that the fatty acids are readily available if they have unsaturated linkages at which oxidation can take place, and so give rise to lower fatty acids; these we know that the organism can by Beta-oxidation convert into acetoacetic acid, and thus into carbonic acid and water.

"But also, if required for purposes of repair, the fatty acids must in part acquire new unsaturated linkages; for the iodine value of the mixed fatty acids, obtained from cells other than those of adipose tissue, is invariably higher than that of the fat in the reserves or in the food, and, indeed, higher than that of oleic acid, the only unsaturated acid commonly present in any quantity in the food. The iodine value of the fatty acids in the cells of the organ is such as would be given by a mixture of oleic and linoleic acid in about equal parts, but, since saturated acids absorbing no iodine are present together with unsaturated, either linoleic acid must constitute more than half of the total amount of acids, or there must be acids more unsaturated than linoleic present, with three or more double linkages. Now, it is not in accord with what is known of the functions of the liver to suppose that higher fatty acids are, in any great amount, completely oxidized there. The liver is not an organ like the heart or kidney, whose functions involve the transformation of chemical energy on a large scale; and its blood supply is largely venous. If more of the reserve fat is taken up by the liver than by the heart and kidney, it seems that the liver cannot require it for its own use, but must do something with it to render it more suitable for the uses of other cells. Whether the uses to which these cells put it are oxidation for energy or repair of an essential component of their own protoplasm, as we have seen, new unsaturated linkages appear to be required. Is it possible that it is in the liver that these are introduced?

"Experiments were done which seem to show that this must be so. Rats or cats were fed on food containing cod liver oil or the flesh of herrings, into the composition of which acids with a very high iodine

value enter. The fatty acids subsequently found in the liver of these animals had an iodine value that was still higher than that of the mixed acids of the oil or fat that had been eaten. This might be accounted for by supposing that those fatty acids to which the high iodine value of the fats contained in the food was due, acids with three or more double linkages, were taken up by the liver more readily, or, having been taken up, were less readily disposed of than other acids more completely saturated with which the liver commonly has to deal. But there is other evidence which makes the explanation which was originally put forward more probable, namely, that some of the acids had had new unsaturated linkages introduced; the acids in which this occurred being probably those of the stearic and oleic acid series present in the mixture presented by the fish oils, and present also in the mixtures of acids that occur in the fats of the animal's usual food. The other evidence in favor of this explanation is the proof given by Hartley (1909) that the liver of the pig contains an oleic acid different from that in lard, the reserve fat of the same species of animal. In lard the oleic acid is the common acid with the unsaturated pair of carbon atoms exactly in the middle of the chain, as Hartley showed by oxidising it with alkaline permanganate and isolating pelargonic acid. But from the pig's liver the unsaturated acids obtained were an oleic acid that, treated in the same way, gave caproic instead of pelargonic acid, and a dicarboxylic acid with 12 carbon atoms instead of azaleic, which, in the oxidation of lard, though it was not isolated, was presumably formed together with the pelargonic acid; and, in addition to this new oleic acid, a linoleic acid that, on oxidation, gave caproic and acetic acid, the latter derived from malonic acid. In this linoleic acid, therefore, the double linkages were one in the middle of the chain, and the other three places further from the carboxyl group. The hydroxyl acids obtained from these two unsaturated acids by oxidizing at a low temperature agreed with this view of their constitution. In the pig's liver then two acids were found, neither of which exists in lard, one of which would be formed from the stearic, the other from the oleic acid of the pig's reserve fat by the same change in both cases, the introduction of a new unsaturated union between the sixth and seventh carbon atoms counted from the methyl group as the first. If the same change had been effected in the stearic and oleic acids of the fish oils, by the livers of the cats and rats in the previously mentioned experiments, this would account for the iodine values found in the acids of those animals' livers.

"We have thus seen that it is common for the liver to contain fat that has been transferred to it from the fat depots, commoner than it is for other organs, and in far larger amount than other organs; and from the consideration of all the facts we are led to interpret them provisionally in this way: when fat is called up for use, it is more particularly the liver that, in the first instance, normally deals with it; in the cells of the liver it is prepared for the uses to which it is to be put in the body generally by desaturation of the fatty acids."

Thus, the normal function of the liver is in part concerned with the desaturation of fats the better to meet the requirements of the various cells of the body abounding in unsaturates; and contemporary food trends, through the large scale introduction of vitamin-depleted, fatty-acid extinguished fat supplies, directly violate and oppose the physiological activities of the body. In some instances, the substitution of mineral oil for fat has taken place. Added to the proved vitamin-depleting property of mineral oil, about which innumerable references have appeared in excellent publications, and its absolute valueless nutritive property due to its lack of absorption by the organism, there seems to be no heed to the lurking carcinogenetic property of mineral oil, which has been quite repeatedly mentioned in unbiased medical literature, but with equal regularity ignored. This perverted and denatured fat supply, fed liberally to the children and adults of a nation in place of the former vegetable oils expressed naturally and unmodified, make the findings of Burr and Burr take on a new significance of which practitioners of medicine may well be aware.

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THE SURGICAL TREATMENT OF RETINAL DETACHMENT

SAMUEL J. MEYER, M. D.

CHICAGO

Gonin first used thermocauterization for treatment of retinal detachment in 1916, and in 1923 reported on this method. In 1925 he reported five successful cases; in 1928 he reported upon twenty-six more following single cauterization of a small retinal tear. His reports, publications and presentations led to the widespread attempt to use the cautery method by many distinguished ophthalmic surgeons. Limitation of space will not allow mention of the many thorough reports that have followed. We must also remember that Addario first used a similar cauterization technique as far back as 1889.

At the International Ophthalmological Congress in Amsterdam in 1929, Gonin reported on one hundred cases, and in 1932 he again reported on a total of three hundred cases. Of course, many other forms of treatment have been reported upon during this time such as the method of Colmatage by La Grange, the method of Sourdille, spontaneous healing, bed rest, use of tuberculin, puncture method, injection of sodium chloride, injection of sodium chloride and magnesium sulphate. Other methods also consisted of injection of Dionin and atropine, venesection, drainage procedures, use of Jodôl, Jontophoresis, thermophor, vibrations, cataphoresis and injection of rabbit vitreous, etc.

The foundation of the cauterization method is based on the assumption that detachment of the retina is secondary to a hole or tear in the retina, the closure of which results in healing. Gonin believes that the altered condition of the vitreous results in the formation of retinal tears, probably on account of adhesions between vitreous and retina. Nutritional disturbances in the vitreous may lead to retraction of the vitreous structure. Thickening of the vitreous consistency results in epithelial cell proliferation and connective tissue formation which may cause traction and result in formation of tears in areas where adhesions or choroiditis is present. The exudate from the choroid is secondary. The original cause is an equatorial choroiditis and possi-

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bly other disorders in the anterior eyeball segment, which are associated with age and myopia. When the retinal tear is present, vitreous seeps through behind the retina and the latter becomes detached. The presence of a tear is, therefore, the assumption for the formation of a retinal detachment.

The frequency with which tears are found varies with the investigators reporting, but the percentage becomes much greater as more cases are accurately examined. Deutschmann first reported the presence of tears in 17.4% of his cases. Gonin later reported the presence of tears in 95% of his cases. The presence of vitreous opacities may easily hinder or make impossible the finding of a tear, while haphazard and unskillful examinations may also preclude the observation of same. The shape of the tear varies. It may be round, triangular, horse-shoe shaped, crescent-shaped, slit-like, or irregular. The concavity or base of a retinal tear is always directed towards the periphery of the retina. The flap is pushed toward the vitreous. The tearing out of a flap reveals that it is not due to pressure from a retrolental exudate. Multiple tears may be present in about one-ninth of the cases. The size of the tear varies between 1/5 and 12 P. D., according to Gonin. Single tears at the ora serrata may even be larger.

The tear is most usually located on the temporal side, less than half are situated on the nasal side. Twice as many tears occur in the upper as in the lower half, so that, therefore, most tears are usually situated in the superior-temporal region. The tears are usually situated in a small area of the retina, about 7 mm. in width, located between the equator and ora serrata. Disinsertions at the ora serrata usually occur in the lower temporal region, and are noted in 10% to 25% of the cases examined. They are closely associated with a history of trauma, and usually occur in emmetropic eyes.

The Technique of Gonin. The past history, previous eye diseases, general physical findings, and thorough examination of the eye in question are of the utmost importance. After intensive pupillary dilatation the exact findings are marked out diagrammatically. The drawing should include the ora serrata and the equator. This may necessitate intensive study over a period of several days. Occasionally it may be

simplified by absolute bed rest for several days to allow the retinal folds to recede backwards. Following the use of Lindner's "hole-spectacles" for a few days, a better view of the entire retina may be obtained. The form and size of the tear is carefully noted, and compared in size to the size of the optic disk, the diameter of which is approximately 1.5 mm. The site of the retinal hole is calculated in terms of disc diameters from the ora serrata, the axis being designated by degrees from 0-360, or according to the clock hands. The exact meridian is tattooed upon the eyeball with India ink or gentian violet at the limbus opposite the tear. If this is in line another tattoo mark diametrically opposite the first is made at the limbus near the tear. At time of operation a thread of silk is knotted at site of the first pigment mark, passed over the center of the cornea to the second pigment mark so that its prolongation crosses the site of the retinal hole. The distance of the ora serrata from the limbus is next marked off with calipers, 6-7 mm. in emmetropic and 8-9 in myopic eyes. This distance is added to the calculated distance that the tear is situated from the ora serrata and the spot marked with a light cautery mark or a trephine turn. The distance from the ora serrata to the equator is approximately 6 mm. Other methods of localization may be used, such as the localization ophthalmoscope, perimeters with various attachments, etc.

It is wise to prepare the patient beforehand by administering an enema, and using a mild hypnotic such as allonal, amytol, nembutal or evipan. Various forms of blood coagulants may be used before operation if hemorrhage is feared.

The eye is anesthetized with cocaine 4% instillation at four minute intervals until four drops have been used. Novocaine 2% is injected subconjunctivally over the site of the operative field, or if desired, retrobulbar injection of same may be used. The conjunctiva is incised with a semicircular incision over the area to be cauterized, and if any extraocular muscles obscure the operative field, they may be pulled aside with muscle hooks or guide sutures, or resected at their insertions and sutured in place again after cauterization is completed. The latter procedure simplifies the technic. The operative field must be kept dry and all bleeding controlled with

adrenalin 1-1000 instillation and frequent sponging.

The silk guide thread is placed across the tattooed points and over the retinal tear region, and the exact distance of the tear measured from the limbus along the thread with a curved rule or calipers. When the exact point is accurately located, a Graefe knife is carefully thrust through the sclera for a few mm., depending upon the amount of elevation of the retina, and turned 90° to allow escape of the subretinal fluid. The hot Paquelin cautery is immediately inserted through this opening for a distance of several mm., and removed after two seconds have elapsed. The conjunctiva is now sutured and the guide threads are removed. Atropine 1% is instilled and a binocular bandage is applied.

There is practically no difference in the end results reported by the various investigators in comparing the results when a Paquelin cautery or an electric thermocautery has been used. Vogt has used the latter in his series of cases and believes more of the operative field is accessible with this instrument. Of course, the electric thermocautery cools quickly while the Paquelin does not.

Absolute bed rest of at least five or six days is essential after the operation. The dressings should be changed daily. Ophthalmoscopy should not be attempted before the third or fourth day. The patient may be allowed out of bed on the eighth day and should be given a pair of Lindner's "hole-spectacles" to wear in order to keep the eyes as stationary as possible.

If the cauterization has been unsuccessful, it may be repeated on the ninth or tenth day; in severe cases as early as the sixth day following the first attempt. The object of the operation is to completely close and seal the retinal tear itself, so that the retina will reattach itself of its own accord when the causative factor is removed.

The ophthalmoscope reveals the end result as a round or oval white area with black border, possibly surrounded by small hemorrhages on about the sixth day. The coagulated mass of vitreous recedes during the following three weeks so that a yellow scar with considerable surrounding pigment results. This light scar may be from two to three times as large as the original observed.

The complications may consist of a vitreous

hemorrhage, usually six to ten days after operation, following absorption of the coagulated blood vessels. There is also a destruction of the surrounding retina as mentioned by Lindner. The retina may not only become atrophied, but it may be shrunk or shortened. It may even become necrotic. Atrophy of the eyeball and infection may occur. Neuritis and papilledema may also occur all too frequently, as may cataract formation. The first case performed by the author in the autumn of 1929 resulted in reattachment, but the vision was interfered with by the formation of a cataract four months later.

Chemical Treatment of Retinal Detachment (Guist-Lindner). In 1930 Lindner decided to investigate other methods than the use of the Paquelin cautery on account of the many complications that had occurred. Guist at this time had performed a series of cases using potassium hydroxide to form adhesions between the retina and choroid.

The technic of Guist and Lindner is very time consuming, but has none of the dangers that opening the eyeball and the use of the Paquelin entails.

The preparation of the patient is the same as for thermocauterization.

Following preoperative medication and retrobulbar anesthesia, careful dissection of the conjunctiva is made to give enough exposure to the sclera, and if found necessary, the over-lying muscle may be incised and displaced out of the operative field. The trephine openings are made with either 1.5 or 1.7 mm. diameter trephines, and the holes are spaced one mm. apart. The trephine may either penetrate or almost penetrate the sclera, but it must not injure the choroid. The scleral button is fixed with forceps, slightly elevated and freed with a keratome. The trephine openings are then touched individually with a sharp pointed potassium hydroxide stick for thirty seconds, and immediately neutralized with a cotton applicator moistened with 1½% acetic acid. The KOH stick must be frequently dried, otherwise it dissolves very easily and may cause a destruction of too much scleral tissue. As many as twenty trephine openings may be cauterized. After all the openings have been cauterized, several are perforated with a dull pointed sound to allow a release of the subretinal fluid. Blood vessels must be avoided.

Complete bed rest is essential following the operation. Binocular bandage for two days, then monocular. "Hole-spectacles" may be worn on the eighth day. Complications consist of perforation of the choroid, in which case the opening must be closed with a suture. In case of hemorrhage occurring, the operation is interrupted temporarily until it is controlled, or ended entirely and repeated at a later time. At the area of cauterization there results a grayish-white discoloration of the retina, later hemorrhages and exudates, and after several weeks pigmentation. Healing is complete only after three or four months. The operation is very time consuming, as often as much as half an eyeball must be trephined. The operation is not indicated in vesicular detachments, especially when large. Post-operative hemorrhages are usually not serious, especially when the retina is again in place. The most serious post-operative complication is necrosis of the sclera, which usually results in an atrophy of the eyeball. (Four times in three patients of Guist, 1932.)

Statistics regarding this technic are not voluminous. Gonin himself believes the operation may be indicated in cases where the retinal tear is very large and the use of a thermocautery is not deemed sufficient; also in cases where the exact location of the tear cannot be localized.

Hessberg has combined the technic of Guist, Weve and Meller by encircling the region of the tear with a series of trephine openings, encircling these with diathermy applications to the sclera and occasionally touching the scleral fibers remaining in the trephine openings and finally puncturing several of them.

The Guist method is advantageous because it is not absolutely necessary to localize the tear, and the retina is not further injured. No contraction of the retina occurs. One should attempt to avoid any intraocular hemorrhage. Disadvantages consist of the great amount of time entailed and the difficulty of the procedure. In place of the KOH stick, Lindner has tried the use of 6%, or 3%, and later 4% KOH solution, to avoid action upon tissues other than the choroid.

For macular tears, Lindner advised trephination at the equator, undermining of the choroid from here to the macular region, followed by the careful insertion of curved cannulas and the ap-

plication of 6% or 3% KOH solution directly to the macular region.

The use of other chemicals have been tried, but KOH is probably the best. Oxyanate of mercury 5% is also useful. Deutschmann has used Tr. of iodine in the trephine openings as well as in flat incisions of the sclera.

Diathermy (Weve, Larsson). Although the chemical method gave very good results, it is very difficult to make so many trephine openings only up to the choroid, without doing more damage. In the early operations, the use of the KOH stick resulted in unnecessarily severe cauterization of the tissues. In 1930 Weve first reported in a Holland publication the use of diathermy to seal the retinal tear. A little later in the same year, Larsson reported his method of diathermy, which he had already used for several years. Weve tried his method as an improvement over Gonin's especially in cases where the latter had failed, large or multiple tears, tears at the ora serrata, where it was impossible to find a tear, cloudy media, etc.; cases where a closure of the tear by thermocautery was impossible.

The equipment consists of a machine with fine graduations for a weak current. Inactive zinc plate electrodes of 15 x 20 cm. are applied to the arm. The active electrode consists of a needle with a metal head of 3.5 mm. diameter. Wound retractors are made of bent glass hooks. The field of operation is exposed as previously noted, and must be kept thoroughly dry. There must be no bleeding of tissues. The electrode must be sterilized beforehand as it does not become hot. The current is 100-150 M. A. If a needle is used, the highest current is 50-60 M. A. Coagulation is produced until the sclera becomes dry. The applications to the sclera are made several millimeters apart until the area of the tear is circumscribed. If the detachment is flat no puncture of the retina is indicated, if not, puncture is made with a needle or the thermocautery. Binocular dressings for several days. The tension is at first reduced, but rises later. The retina first becomes reattached after one week. To fasten tears one may make multiple micro-coagulations, especially in the region of the serrata tears, with a needle electrode which perforates the sclera for a distance of 3 mm. This is easily done when the current is on. This method of diathermy does not interfere with the function of the surrounding tissue, as is evi-

denced by the visual fields later. Weve's technic now consists of the use of a unipolar current of 50 M. A.

Larsson's method is identical, but he uses an electrode of 1.66 mm. diameter and a current under 100 M. A. The current is closed for five seconds. Several areas of sclera are touched and a trephine opening is made opposite the greatest elevation to allow loss of subretinal fluid. Exact localization is not necessary. Hemorrhage is not frequent. Vitreous hemorrhages are common but absorb readily. The retina becomes reattached five to eight days after operation. White areas are formed at the region of the coagulation.

Diathermy Puncture (Safar). This method is characterized by the use of a needle insulated up to 1.5 to 2 mm. from its point, which by aid of its heat is forced through the sclera and cauterizes only the choroid and retina. An attempt is made to close the tear. The preparation is similar to that mentioned for the previous types of operation.

The electrodes consist of small brushes with an isolated handle and base or plate containing several 1.5 to 2 mm. steel needles which protrude. The plate is placed on the cleanly exposed sclera, the current is applied, released, and the brush removed. The shape of the electrodes vary. The needles are spaced 1.8 mm. apart. Five to eight needles are on a plate. For more posterior application, the handles are bent. With these electrodes a rather larger area of tissue can be treated, and loss of fluid is avoided by allowing the plate to remain in place. Injury to the macula has not been noted, and early operative interference is indicated. The subretinal fluid is removed by means of a blunt cannula. Absolute bed rest is indicated following operation. The early conjunctival chemosis readily recedes and the inflammatory reaction is very slight. At the point of application are noted cloudy grayish-white areas, which later become clearer, followed by the formation of small foci similar to that seen in old choroiditis. These changes occur as a rule between six to eight weeks.

The complications have been glaucoma and vitreous hemorrhage.

The Method of Sourdille. This consists of scleroretinal punctures in the region of the retina in the hope that a marked reaction of the retina occurs, so that adhesion between the retina and

choroid occurs. The punctures are made with a fine sharp Graefe knife, usually 2-4, about 1 mm. deep to be certain to strike the retina. No account of the presence of tears is made. Through these punctures the subretinal fluid escapes, also the fluid in the vitreous caused by the choroidal initiation.

The reaction is produced by galvano-cauterization with a fine burner, which attacks the retina. In marked detachments the reaction may also be produced by subconjunctival injections of 1-2 c.c. oxycyanate of mercury solution (1-1000). The reaction must work upon the entire surface of the detachment. The postoperative treatment consists of fourteen days absolute bed rest. On the tenth or twelfth day, five or six electrolytic punctures through the sclera are made using a current of 2-3 M. A. Subconjunctival injections of hydrargyri oxycyanati 1-5000 or 1-3000 are made.

The object in the aforementioned methods is to produce a mass of scar tissue posterior to the tear, so that when the subretinal fluid drains off, and the retina returns to its normal position, the hole will become occluded. The Gonin puncture is a drastic operation, which further traumatizes an already too frequently degenerated vitreous, producing a mass of scar tissue in the various coats of the eye, with frequently resulting secondary tears. Furthermore the cautery must hit the tear, and this is the difficult part of the procedure. More than one cautery puncture may be necessary in large or multiple tears, while in the other methods the extent of cauterization is so large that exact localization is not entirely essential. The Guist and Larsson methods are essentially outside the vitreous chamber and no loss of vitreous should occur. On the contrary, the Guist-Lindner method is very tedious, time consuming and extremely difficult as the danger of perforating the choroid is always present. The Weve and Larsson methods of diathermy possess all the advantages of multiple trephining without the attendant disadvantages, are simple in procedure, not time consuming and require a technic so simple that it is within the domain of every ophthalmic surgeon.

58 E. Washington St.

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DISCUSSION

Dr. O. B. Nugent, Chicago: Dr. Meyer did not mention, I believe, the use of the Walker needles which are made of iridoplatinum, and each needle is of proper length so it just allows for coagulation of the choroid. Each needle is placed in position with a cannula and there is a silk thread fastened to each needle so one is able to map out the portion of detachment and then make as many punctures as he needs. When you are all through you remove the needles one at a time. The best results I have had have been with these Walker needles.

I use 225 ma. long enough to pass the needle all the way through the sclera. As I turn the current on I press the needle through the sclera and as soon as it is through I turn the current off, this coagulates the tissue and causes the iris to adhere to the choroid. The tension is just as high when you finish the puncture as when you make the first; there is too much drainage and the eyeball is too soft to finish the operation properly when all the coagulation is done with the same needle.

DIPHTHERIA IMMUNIZATION IN PRIVATE PRACTICE

KING GRIER WOODWARD, M.D.
 ROCKFORD, ILLINOIS

Medical literature for the past several years is replete with articles and statistics on the ways and means of immunizing an individual against diphtheria. Most of these reports deal with thousands of cases immunized in schools, institutions and large city wide campaigns, but little is given to us of the work done in every day practice in the private life of the physician.

Physicians' Responsibility. We are indebted to such men as Zingher, Park, Behring, Ramon, Schick and others for the original investigations, development and perfection of proper diphtheria preventive measures. They have done their work chiefly in research laboratories and in public institutions and have handed down to us highly refined and positive means of protecting our

patients against this communicable disease. Are we as physicians accepting this responsibility? Do we do our part and continue to educate the public along diphtheria preventive lines? The physician-patient relationship is bound to differ from the institutional worker's relationship to the patient. In the first instance we as family physicians are immunizing individuals as against mass immunization. We are asking a fee for our services whereas the institutional patients are receiving their protection for nothing. We are called upon to explain reactions and results; how long will the protection last; what is the best age to begin immunization; what is the best material to use and is the final Schick test necessary. These and many other problems must be met by the physician in private life and it was with such questions in mind that I undertook an analysis of diphtheria immunization in private practice and am presenting the work here today.

Analysis of Immunization. The figures presented include immunization of 503 individuals from six months to twelve years of age, extending over a period of three years. Both toxin-antitoxin and diphtheria toxoid were used. No Schick tests were done previous to immunization on children under seven years of age and a personal letter was written to each parent six months after the last immunization dose was given, impressing upon them the necessity of a final Schick test.

Use of Toxin-antitoxin. Three injections of 1 c.c. each of toxin-antitoxin at one week intervals were given to 143 children of this series. Of this number 117 returned for a Schick test and 17 were Schick positive.

Use of Toxoid. The remaining 360 children received a total of 3 c.c. each of diphtheria toxoid, 1 c.c. being given at each visit, two weeks apart. After six months 300 of these children returned for a Schick test and 100 per cent. were negative. In both groups the Schick tests were interpreted on the fourth day after the injection and in the event of a doubtful reading a control was done: The local or constitutional reaction to either toxin-antitoxin or toxoid was negligible.

Further Analysis of Figures. A further study of these figures revealed some interesting facts. Of the 503 immunized children only 26 were six years or older when they received their first injection. Of the 86 children who did not return

for a Schick test all but 4 were over fifteen months of age when the Schick was done. It is much easier to have the parent return with the child while he or she is still under two years to have the final Schick test done during some routine office examination than it is to wait until school age, which such office check-ups are less frequent and necessary.

Analysis of the Schick Positive Cases. The following table gives us an analysis of the seventeen children who were Schick positive after immunization with toxin-antitoxin.

ANALYSIS OF SEVENTEEN SCHICK POSITIVE CASES

- 10 were six years or older when the Schick was done.
- 6 returned and were given three toxoid injections with a subsequent negative Schick.
- 2 had their tonsils removed and were Schick negative six months later.
- 1 had had diphtheria before toxin-antitoxin was given.
- 3 were re-Schicked two years after the original test with no further injections and were negative.
- 2 groups of two sisters were positive.
- 11 of the original 17 were rendered Schick negative.

Review of Diphtheria Cases. A review of the cases of diphtheria that I have seen in private practice in the past ten years showed that 55 per cent. were under three years when they contracted the disease and three had previously had toxin-antitoxin, but no follow-up Schick test. These two facts again bring out the necessity of early immunization a final Schick test.

Method of Conducting Diphtheria Immunization Campaign. Before I conclude this paper I should like to say a few words relative to the way diphtheria immunization is handled in Winnebago County. Four years ago we physicians in Winnebago County realized that it was our duty to make the public diphtheria conscious. We felt that education should best come from the physician and immunization be done by the individual physicians and not by the health commissioner or school physician. An intensive educational campaign was conducted with the whole-hearted cooperation of the local and state health authorities and school officials. Newspaper advertising, radio talks and addresses to Parents and Teachers Associations formed part of our program. Every physician entering in this campaign set aside a definite hour each week for a prescribed period as a special clinic hour, at which time he took care of his own patients at a reduced fee. Cards were properly filled out and when

completed sent to the local health department for permanent records. No free immunization was done by the health officer or school physician, each doctor taking care of his own charity patients when necessary. This program has been in effect for four years with various modifications when the occasion arose. The people are now becoming diphtheria minded, so that immunization is not only carried on during the annual diphtheria campaign but probably more extensively throughout the year as a part of a routine office practice and the physician-patient relationship, of which we hear so much, is actively maintained. It is my feeling that an annual immunization campaign keeps the public diphtheria conscious and stimulates the physician to keeping up a perpetual diphtheria immunization educational program.

Diphtheria Rate in Rockford from 1923 to 1933 Inclusive. The following table shows the results of our campaign.

Year	Cases	Deaths
1923	80	9
1924	44	2
1925	24	1
1926	23	1
1927	21	2
1928	37	2
1929	93	5
1930	96	8
	campaign started	
1931	24	0
1932	17	0
1933	8	0

CONCLUSIONS

1. In the series reported 3 c.c. of diphtheria toxoid proved to be 100 per cent. effective in immunizing children against diphtheria.
2. The best age at which to start immunization is from six months to one year.
3. A final Schick test six months after the last injection is imperative.
4. Diphtheria immunization is best carried out by the family physician in his own office as a part of a perpetual educational program.

DISCUSSION

Dr. Archibald Hoyne, Chicago: This paper emphasizes the fact, which cannot receive too much consideration, that it will not do simply to have known preventives for some diseases and then fail to adopt them. When we look back and consider that there has been an absolute preventive for smallpox for nearly 150 years, yet millions of people have died from the disease during that time, perhaps we may be inclined to congratulate ourselves on the headway made in campaigns of diphtheria prevention. In large cities it is probably not as easy a matter for the family physician

to be persuaded to take the interest which Dr. Woodward has reported in the city of Rockford. If the family physician fails in this respect, why, naturally, the work must fall on the Public Health Department. It does seem, however, that the method described by Dr. Woodward is the ideal one. The family physician properly is the one who ought to immunize the patients in his community. Beginning immunization as early as six months of age has at times been questioned, some thinking it too soon to start, believing that a later period should be selected, maybe from nine months to one year.

In view of the statistics that we have seen here this afternoon, it would look as though there is no question but what that period in the child's life is a perfectly proper one.

Another point which Dr. Woodward brought out particularly is the necessity for doing Schick tests. There is no doubt that a great many physicians, certainly in some of the larger cities where they undertake to immunize children, do not follow up with the Schick test. Consequently they are not certain they have actually immunized the patient and for that reason the family may be living under the false idea that the child is protected from diphtheria, whereas in reality it may not be. Therefore, whenever any immunization is undertaken, the Schick test should always be done afterwards to be certain that the operation has been successful.

In Chicago a great deal has been done along the line of immunization. As illustrative of this, I might mention going back for a period of five years that in 1929 at the Municipal Contagious Disease Hospital there were 1460 cases of diphtheria admitted with 163 deaths. Last year, 1933, there were but 97 cases of diphtheria admitted with six deaths. This does not mean that the hospital there admits all of the diphtheria patients but the admissions are a good barometer of the diphtheria prevailing in Chicago. This decline in hospital cases is indicative of what immunization against diphtheria can do.

I think that Dr. Woodward and the city of Rockford are surely to be congratulated on the remarkable success they have achieved; especially in view of the fact that all the work has been done by the private physicians and not been dumped onto the Public Health Department, as is frequently the case.

Dr. C. A. Earle, Des Plaines, Ill.: I, too, want to congratulate the doctor on the large number of immunizations that he has done in private practice. I never have been convinced that children above four or five years of age really ought to be given a dose of toxoid or TA without a previous positive Schick test. I shall attempt to show that more skin testing ought to be done. The profession must practice it more extensively. People must and will become test minded. It is now more than twenty-one years since Theobald Smith—may his tribe increase—suggested the active immunization of children by means of a mixture of diphtheria toxin and antitoxin. The history of medicine cannot show a more convincing procedure for the prevention of a serious disease than the work of Smith

on the guinea pig, which led to his memorable recommendation for the use of TA mixtures in the prevention of diphtheria. For years it was known that diphtheria was the same in the guinea pig as in the child. Even today, as then, this squeaking little animal is the measuring rod for the strength and potency of diphtheria toxin and antitoxin. Park used such mixtures in horses to speed up antitoxin formation. Finally, Behring, without mentioning Smith's work, announced his TA mixtures. Then followed the work of Park and Zingher in children. Many of you probably remember Zingher when he attended a medical meeting he always carried a Schick testing syringe and toxin with him. He would stand at the door of the room and offer to test the doctors as they came out of the medical meeting. Excepting the elaboration of diphtheria toxoid, we know no more of diphtheria prevention than we did twenty years ago. Yet how slowly the medical profession took it up. I have been reminiscent, old age is also presumptive, hence you will pardon me if I take a glance into the future, dim though my vision may be; I predict that other tests for other diseases and other procedures for immunization against other diseases will be elaborated. Even now besides the Dick test there are skin tests for tularemia and for some of the dermatoses and that baffling disease, undulant fever, and in the treatment or in gauging the treatment of certain types of pneumonia. The Mantoux test will be as common as the Schick test. Skin tests for susceptibility to whooping-cough and active immunization against this disease are just around the corner. Whether this skin game—I mean this skin testing game—will ever be as lucrative as the tonsillectomy or the appendectomy game, I don't know. But I do believe that the very existence of the general practitioner of the future will come largely from the practice of preventive medicine. Will he be alert? Will he take more medical journals and keep abreast of the times? Will he grasp and appropriate every new and sound procedure for disease prevention? If he does not, the State will.

Dr. Woodward, (closing): I want to thank Dr. Hoyne and Dr. Earle for this discussion, and again emphasize what I feel is the importance of early protection because of the fact that it is so much easier to get the parents back for the Schick test, and also, if the physician is alert to his responsibilities, that he will educate more parents to have their children actively immunized against diphtheria.

THE ROLE OF THE X-RAY IN INDUSTRIAL HYGIENE

PAUL G. DICK, M. D.

CHICAGO

During the past few years, especially since the beginning of the depression, there has been a tendency toward increase in the number of suits for damages by employees against employers.

Read before Section on Radiology, at Springfield, May 16, 1934.

This increase has been found in all forms of industrial injury and occupational diseases.

A statement published by the Ohio Industrial Commissionair in the Ohio Industrial Commission Monitor, September, 1932, states: "Due to the liberalized interpretation of law laid down during the period of the depression, constant and intensified effort on the part of a great many claimants and their representatives to employ every known avenue for reopening of old and all but forgotten claims, seeking to restore thousands of one time injured workmen to compensation benefits, appeals to the courts have grown in astounding numbers and, without legislative remedy, the scope of the drainage upon the available funds is problematical."

This condition is not confined to Ohio alone but is prevalent throughout the entire United States.

One of the most likely etiological factors is, first of all, the reduction in employment along with the unrest of the populace in general. Many of the employees have had employment which enabled them to participate in a fair standard of living. The great majority of these individuals did not provide for the rainy season and when employment ceased, so did the bread and butter.

People in this state of mind are easily influenced by the cohorts of shady attorneys. They are led into court as the sheep to the slaughter. These individuals are lead to believe that they are sick even if they are in good health generally. A smooth-talking, high pressure attorney will promise them damages, far exceeding the probable amount. The only requirement insisted in is that they follow the attorney's instructions. It is an easy thing to sell a person a scheme or racket of this character, and many of these individuals eventually believe that they are entitled to damages. If they were not ill to begin with, it is almost certain that before they have completed the procedure to which they are subjected, they will at least have a headache. The majority of them feel that they are suffering the tortures of the damned from some disease or injury incurred from their occupation; consequently the dockets of the courts are filled with suits for damage incurred from industrial injuries and occupational disease.

Probably the greatest number of cases have de-

veloped in occupational diseases in relation to the chest, particularly pneumoconiosis with its several divisions as silicosis, anthracosis, analine dye irritation, etc.

This particular situation has driven the insurance companies to cancel their industrial insurance on a number of different kinds of manufacturing, such as those which include grinding, molding and all branches of industry that have dust hazards. This phase of the situation has driven the employers to some oasis whereby they can secure a form of insurance that will protect them from the ravages of the misdirected employee.

It is impossible for the smaller manufacturer to assume his own liabilities, for the reason that if he were to have a suit for damages amounting to several thousand dollars it would probably cause him to lose his business, especially in times like these.

A few of the insurance companies have decided that they are willing to take the risk of placing insurance with manufacturing concerns who have an occupational hazard, if they can be satisfied that the employee is not, at the time of issuance of the insurance, suffering from one of the forms of latent disease or antecedent disease that may be aggravated by his or her employment. These conditions have been legislated to be allowed compensation if it is shown that they are excited to activity or aggravated to any degree. Therefore they demand of the employer an examination that will satisfy the medical departments that any disease, occupational or otherwise, does not exist to be aggravated by the present occupation. As an instance, any pulmonary pathology might be construed as being caused or aggravated by an occupation. It is necessary to rule out all forms of chest pathology. For example: An employee having tuberculosis in any stage should not be permitted to work in a position which would have a tendency to cause irritation of the mucous membranes. An individual with heart or aortic-changes should be guarded against occupational strain.

There is no better method of obtaining permanent records of normal or pathological conditions of the organs of the body than the preserved x-ray films of any part of the anatomy. A comparison of x-ray examinations over a given period of development or recession of a disease excels

any other form of physical examination. For it can be visualized at its various stages and comparisons are most exact. These records can be preserved over a long period of time and can be examined as frequently as necessary under the same conditions by a number of different individuals. Physical examinations can also be recorded, but it is impossible when a difference of opinion exists at some later date to actually have the patient before you under the identical condition to settle the dispute. Different impressions of the physical findings are quite frequent, while the x-ray films record only those conditions that exist. A comparison of films has already proved its worth in some of the cases when pre-entrance examinations have been made and reported by Dr. Bohart for the Belt Line Railroad. These examinations were of the spine alone.

An x-ray examination of the chest is the most reliable means of determining the changes of a chronic inflammatory process such as is found in the several divisions of pneumoconiosis. This film can be retained as a permanent visible record of the existing changes, if any; and if a disease develops during the employment of an individual who has a recorded normal x-ray it would be a much easier process to establish the causative factor and responsibility. The insurance companies have adopted a rule requiring this kind of procedure before insurance will be issued to manufacturers having occupational hazards. Furthermore according to a report of the American Railway Association, out of a total of 1,192 back examinations 798 variations and diseases were found that were not detected by physical examinations. The insurance companies demand that these examinations will be made by a reputable radiologist of their choice. If these examinations are carried out along proper lines and the records are properly filed and preserved, I am of the opinion that the end will be most gratifying to industry at large and that insurance companies will be well repaid for their efforts along these lines: also that the employee will benefit, since deserving employees will not be inconvenienced by costly court procedures and it will not be necessary for them to give a great part of their compensation to so-called ambulance chasers. In fact, it is my belief that in a short period of time the same procedure will be carried out in other fields of the x-ray, especially in ex-

amination of bones. It is thought that all lines of industry having occupations hazardous to bones, will eventually require a complete x-ray of the bony skeleton before accepting an employee and, should there be existing previous injury or some congenital variation of bone, a non-contestible record of this fact will therefore be available. It is an established fact that there is as much if not more compensation paid for existing congenital deformities, hypertrophic bone changes, and other existing bone deformities than there is for actual traumatic lesions or occupational diseases.

Data gathered from the members of the Chicago claim agents of all class A railroads entering Chicago, indicates the number of claims from personal injury to employers have decreased 76 per cent since 1923. This is apparently due to the intense Safety First Campaign which has been carried on by these companies. But quoting another paragraph from a letter by the secretary of this organization, he states:

"On the other hand, I am of the impression, and quite a few of the other railroad claim men agree with me, that we have had in the past few years of the 'depression' more litigation involving questionable cases or cases entirely without merit than at any time during the last decade. In other words, there has been an increase in cases where the disability was not due to trauma or had no connection with trauma, although in some of these cases it would be hard to prove the line of demarcation between trauma and disability from disease. In these days of 'hard times' employees suffering disability usually try to figure out some way that the disability can be linked up with an accident. We have had a host of cases wherein hernias are just being discovered and the person afflicted claims it is due to a strain or over-lifting or something of that sort at some time in the recent past, although no report was made of the alleged 'accident' at the time it actually occurred."

At the present time it is hard to convince an employer to spend a sum possibly aggregating twenty-five dollars for each employee as an entrance examination since this amount would appear entirely prohibitive to him. However, if insurance companies refuse to insure the employees and the employer has a few large damage suits fastened on him, it will be a much simpler task

to convince him of the economic advantage of a thorough entrance examination.

I have been fortunate during this time of financial distress in having some of the insurance companies refer cases to me for chest examinations for existing pneumoconiosis. It was especially interesting to see the amount of existing pathology that was found in the chest of unsuspecting individuals. The pathological changes in the majority of these cases could easily be made a basis of law procedures although few, if any of them were actually due to occupation. However, if damage suits were entered, they would be very difficult to defend.

In one series of cases, an industry manufacturing stoves, in which there are many occupations considered very hazardous for the several forms of pneumoconiosis, three of the employees had a suspicious pneumoconiosis, or only three per cent. who had any suspicious x-ray findings of this disease. On the other hand, many of the chests presented evidence of pathology all of which were probably contracted from other sources than their occupation. It is possible that the great majority of these diseases existed prior to employment unless the firm happened to be one of very long standing and the employees had been with them for a long period of time.

Other evidences of pathology
found was as follows:

Tuberculosis	3
Gun Shot Wounds.....	1
Pleurisy (Chronic)	9
Hearts (Enlarged)	1
(Mitral Disease)	2
Aortitis	6
Calcified Glands	4
Pneumoconiosis (Early first degree)....	3

Assuming that in the majority of industries, this is the average of individuals who have some of the before mentioned conditions existing, that, it will be readily seen if they were influenced to sue their employers for occupational injuries or disease, the cost of defending the cases alone would so far exceed the original cost of examination that there would be no comparison. One adverse decision in the courts would increase this percentage many times.

Aside from the fact that the employer can be protected from the ravages of the unscrupulous lawyer by this form of examination, it also enables the conscientious employer to place his employees in positions which are not hazardous to

his constitution and which enables them to guard their health better and to continue as wage earners for a longer time. If an individual with some existing pulmonary pathology, contracted from some source other than his occupation, should continue in a position where there is a dust hazard, his condition would in all probability be aggravated; if he were given some less hazardous work with a better chance for his recovery much could be accomplished both for the employee and the employer.

It seems to me that we as physicians and radiologists are doing our part in promoting this phase of our profession, which certainly cannot be construed as anything but beneficial to the public at large, in both an economic and hygienic way. It is a field which I believe will expand, in that all industries that now require physical examination will eventually require some kind of an x-ray examination in connection with the physical to obtain a permanent record of the employee's state of health at the time of entering employment. This would not only protect the employer but it would be far reaching in its effect on the employee. It would enable those responsible to place an employee in an occupation in which he would be shielded from hazards, which would not tend to aggravate an existing disease or to develop some other condition from occupation which might be predisposed by an existing variation from the normal.

There is no doubt that a certain proportion of the individuals who are employed at the present time would be, under conditions as I have outlined, cast aside. For this reason a program outlined for employment according to the individual's physical ability to carry on under the proper hygienic measures would be frowned upon by a certain group. I believe, however, that eventually these conditions would have a tendency to correct themselves and employment in the proper walks of life would be available for all.

SUMMARY

Owing to the changes in the industrial world which have placed a different conception on physical examination of employed individuals, and following in line with the trend for better hygienic surroundings for the employed along with a tendency to eliminate racketeering in regard to the physical hazards of the employed, it places a responsibility on us, as physicians and radiolo-

gists, to promote a program that will eventually lower insurance rates for the employer; take away fees from unscrupulous lawyers and produce more revenue for the radiologist.

DISCUSSION

Dr. T. D. Cantrell, Bloomington: I have nothing but commendation for the paper. The valuable permanent records would no doubt forestall many suits and be of benefit to both the employer and the employee. The examination must be complete and thorough so as to show any former injuries and any anatomical irregularities that render the laborer especially liable to disability due to usual strains.

I wish to call especial attention to the fifth lumbar vertebra. We sometimes find the lateral processes attached to the bones of the pelvis in such a manner as to immobilize the sacrovertebral joint. If such attachment becomes loosened so as to put a strain on the unused joint, pain on standing, walking or any labor will persist for at least five years or until a new joint is established.

I have also noticed neglected fractures of the body of the fifth lumbar vertebra with only ligamental or fibrous union which seems to carry the body weight on the ordinary work of life, as on a farm, but will not support the body in the erect position indefinitely. I found some in military service that could not withstand the hardship of drill and on x-ray examination were discharged from the service after months of punishment for malingering. These conditions cannot be diagnosed except by careful x-ray examinations. I have no doubt but such permanent records would lessen the number of suits for disability.

In my many years of experience on the Medico-legal Committee of Illinois State Medical Society I found we had little trouble with our patients. Our principal trouble was with unscrupulous attorneys, and I anticipate such is the case with industrial suits. I personally believe our worst is not to come but we are on the dawning of a new era. I note with great pleasure that many disreputable attorneys are being disbarred for dishonorable conduct, and we have reason to hope that the legal profession will soon be raised to a much higher plane. But we must remember such disreputable attorneys can make little progress without the assistance of our profession as expert witnesses, so let us have a care with our criticism lest it react on our ancient and honorable profession. We still have a few ambulance chasers.

Dr. George M. Landau, Chicago: I also had the pleasure of reading Dr. Dick's paper and I can only add to what Dr. Cantrell has said, my commendation for that paper. It is quite complete and precludes any discussion.

Dr. Dick has explained in detail the situation confronting the Radiologist in Industrial Hygiene.

In 1929 long before the era of silicosis, one of our railroads had the misfortune of hiring an individual who on his first day of duty claimed he was knocked down by a locomotive sustaining an injury to his

shoulder. Roentgen examination revealed a well advanced sarcoma. At trial the jury awarded the claimant a large verdict, holding that the supposed injury sustained was the cause of this disease. Thereupon the Company had installed in their employment office a complete x-ray unit and rayed all employees and those seeking employment as follows: Chest, spine and pelvis. It has stood them in good stead then as well as now, for I have learned not so long ago that to date at least no claims have been made against them on the basis of silicosis and claims on injuries have been reduced where the injury sustained has been made a claim for aggravating pre-existing bone pathology or changes such as arthritis, scoliosis etc.

I find among our Industrialists a prevailing fear that the Roentgen examination of their employees' chest will lead the employee to assume that they, the Company, are suspicious of an existing disease, and that their employees will of their own volition seek medical advice elsewhere which may form the basis of a suit on actual, imaginary or trumped up pathology. We are all aware of the unscrupulous lawyers and the tender hearted juries awarding in such cases fabulous awards. I believe the time has come however when the fear and the possibilities of suit will have to be overcome on the part of the employer if as Dr. Dick explains insurance companies will not underwrite them where the hazard is great unless they can be assured that by physical and Roentgen examination those having or those suspicious of having any pulmonary disease have been eliminated.

In the State of Illinois today there are pending suits which if rendered in favor of the claimants will bankrupt several insurance companies. It matters not judging from a few of the verdicts rendered whether the disease be tuberculosis or bronchial asthma, if it be termed silicosis the jury renders a verdict in favor of the employee despite the sworn testimony of known reputable clinicians or radiologists.

Without question the radiologist's rôle in determining the question of the presence or absence of silicosis or the allied dust diseases is the paramount one.

Dr. Philip H. Kreuscher, Chicago: I am very happy to come before you this afternoon since I have watched the development of your section in the Illinois State Medical Society for a considerable time. I realize more than ever before that there is no section which deserves larger quarters with better ventilation than this one. There is increasing interest in traumatic surgery, and when I say traumatic surgery, I must include radiology since these two are so closely related that they cannot be separated. You have had before you today problems which should have been heard by a very much larger audience.

In the industrial world the subject of silicosis, which you have just been discussing, has taken a very prominent place. In Illinois this condition up to the present time has not been compensable, but I believe that the time has come when we as physicians should have a very much better understanding of this particular subject. I doubt whether there is one doctor in a hundred who could by physical examination or even by x-ray

examination at the time when the patient is actually suffering make a diagnosis of silicosis. Because of this lack of understanding on the part of the physicians and surgeons many decisions are handed down in the courts which may not be entirely in line with the opinion of those who have given this subject extensive study. It is my understanding that one insurance company in this state has suits in connection with silicosis amounting to almost a half million dollars. One informant has told me that there are pending in the United States suits aggregating two million dollars on the subject of silicosis alone.

Discussions such as these and the ultimate publication of these papers and discussions and the dissemination of this knowledge to the doctors throughout the state is the one thing which will make meetings of this kind worth while. I hope that you will continue the study of this and other conditions in your Section on Radiology. I think you are doing a great work and wish you every deserved success.

Dr. C. O. Sappington, Chicago: Dr. Dick has given you a very excellent paper on an important subject, which will be of increasing importance in the near future.

I want to comment very briefly on this subject from the point of view of the specialist in industrial medicine and occupational diseases and try to "reach hands across the sea," so to speak, between those of us in that field and those of you who are in radiology.

It has been my unusually good fortune in the past twelve years to have viewed more than 50,000 chest plates and films with competent radiologists, from Boston to San Francisco, in a sincere attempt to discriminate between non-industrial disease and industrial disease.

Within the past few years, since we have had this so-called silicosis racket, I have seen a considerable number of films of the chest of man of more than forty years of age who were subjected to dust exposure, and I have had the opportunity to compare those with the chest films of men also over forty years of age who had had no similar exposure. The conclusion that has been reached out of that experience is this: Where the dusts were not appreciably siliceous in content and not productive of silicosis, it was impossible to distinguish between the increase in the markings in those two types of x-ray films, e.g. those who had a mixed type of dust exposure and did not have silicosis, and those who had no dust exposure whatever.

That brings me up to an important point and the information that insurance companies are requiring, and that is an estimate of the severity of dust exposure in the working environment. I had the privilege of giving a paper on this subject yesterday in the combined meeting which some of you attended. Briefly, this estimate should consist of a physical survey of plant conditions, with an occupation analysis of men involved, so you know what you are doing on that end of it.

This should be coupled with physical and chemical determinations with reference to the concentration of the dust, the particle size distribution, percentage of

quartz contained in the dust, and also the exposure of the employees in terms of years.

When you relate all these data and, as I said yesterday, correlate them with the clinical information and, above all, with the radiological findings which are very important, then you have a basis for the estimation of the hazard, which the insurance companies are going to find extremely valuable in adequate underwriting. Previously there has been no intelligent underwriting of occupational disease risks for the simple reason that they have done it by mere inspection. You and I can go out and tell whether a guard covers a wheel or not, and so can an insurance inspector. We cannot go into a plant and look at the air and say whether there is any lead or chromium vapor in it, or how much, nor can we say by looking at a cloud of dust whether it is dangerous or not. Consequently, these procedures are very important. I make a plea, therefore, that you associate these findings with your radiological data.

I wish I could share the view of Dr. Cantrell concerning the future of these court cases. I am naturally optimistic, but I think I have had enough experience in court cases to believe that the system is wrong. As long as you have jury trials, gentlemen, you are going to have these difficulties because you cannot teach a jury. Even though you could get enough people who knew something about occupational disease scientifically (there being good reasons why you cannot) you would have great difficulty in convincing the jury that a man did not have an occupational disease, no matter what your array of defense might be.

I am very much interested in the statement made by our President regarding the total numbers of alleged silicosis claims now pending. I made an estimate of the claims over the entire country about a year ago. It was about \$35,000,000 at that time, from the best I could find out about it. Today it is over \$100,000,000, showing that there has been approximately 200 per cent increase in one year. We must get together. That is exactly why I am making this talk to you. I will heartily cooperate in every way that I can in my line of work, with any radiologist who wants to associate with me to see if we cannot share our information. Of course, this applies to clinicians as well.

THE TREATMENT OF RHEUMATIC HEART DISEASE

CLAYTON J. LUNDY, M. D.

CHICAGO

Our ideas about rheumatic fever have undergone radical changes during the present century. The same is true of heart disease. In circulatory failure we no longer focus our entire attention upon the heart. We now consider the condition of the arteries, veins, capillaries and tissue chemistry. One condition may require

Read before the Adams County Medical Society, Quincy, Ill., Sept. 10, 1934.

tonic or supportive treatment and another the reduction of vascular spasm or relaxing treatment; still another the deprivation or addition of certain chemicals such as N_a , Ca , protein; these being met as the situation demands. In rheumatic fever, long ago we stopped focusing our entire attention upon the rheumatic side of the disease and considered the heart involvement that went with it. Today there is still another stage of advancement in the knowledge of rheumatic fever and so in addition to these two phases we now consider the damage done to the general vascular or blood vessel system. When looking at the capillaries in the nail bed of the spindle shaped finger of infectious (Rheumatoid) arthritis, it is seen that they have undergone considerable damage for they are markedly reduced in number and are very much reduced in caliber. The atrophy of the muscles in rheumatic extremities is probably not all due to disuse, and may be in a large measure due to blood vessel damage by the disease. In fact many leading physicians go so far as to say that rheumatic fever is a disease of the circulatory system. Of course the heart is a part of the circulatory system.

Rheumatic fever, in some way, is associated with infection, possibly a virus and most certainly with the streptococcus; although this is not universally accepted. It is well known that infections which we assume to be due to the streptococcus often precede the onset of rheumatic fever. The outstanding examples of this are tonsillitis and scarlet fever. In addition, nasopharyngitis, sinusitis, mastoiditis, infected ethmoid cells, teeth and gums are probably the most commonly associated factors held responsible for the activation of rheumatic fever. The severity of this pre-infection fails to determine whether or not the patient will develop rheumatic fever for very often mild upper respiratory infections are completely forgotten by such patients. Instances of these pre-infections occurring over and over again, sometimes preceding by as long as three or four weeks, compels the feeling that if they were properly treated rheumatic fever would be effectively prevented. Keeping in mind this possible relationship will at least facilitate early recognition and thereby minimize the consequences.

That rheumatic fever is a systemic infection is a rather widespread notion. There is also the

possibility that the heart and blood vessel system becomes hypersensitive to the toxic products of these pre-infections. In either circumstance there is a real advantage to be gained by diluting the toxins with copious liquid administration during the course of the infection. A whole evening could be spent discussing means of increasing the patient's resistance; I will emphasize rest, vitamins, sunshine, and glandular therapy.

The recognition of rheumatic fever is often very difficult. Young individuals may have little or no rheumatism, but they do have early signs of heart involvement. Adults have more pronounced joint involvement, but often this tends to be of short duration. The early recognition of rheumatic fever is our second most potent factor in its treatment. This is most difficult in cases of mild degree and insidious onset or both. It is manifested clinically very often by fever of undetermined origin, abdominal pain, frequent epistaxis, precordial pain, pleurisy, general stiffness, joint pains, muscle pains, "growing" (sic) pains, chorea, subcutaneous nodules, various types of erythemas, leucocytosis, persistent vomiting, sweating, tachycardia, easy fatigue, undernourishment, loss of appetite, pallor; and especially any group of these symptoms associated with the physical or laboratory findings of endocarditis, pericarditis, or myocarditis is strong presumptive evidence of rheumatic fever. There is one point worthy of emphasis with regard to the physical signs of mitral stenosis. Every once in a while the condition is found by having the patient exercise a little and sit down leaning forward or lie down on his left side. In this manner the presystolic murmur is frequently heard over the cardiac apex or in the third interspace just left of the sternum while it is not heard upon ordinary examination.

Absence of fever and leucocytosis are often misleading because of the nature of the disease. Many weeks may pass without elevation of either temperature or white count, but the rheumatic fever may be active in spite of this. Several laboratory measures are of service in detecting this activity. Those of most importance are the sedimentation rate of the red blood cells and the electrocardiogram. The sedimentation rate may be done in any size graduated centrifuge tube with a small amount of citrate or oxalate just

so that the conditions are always similar for different patients. Any rate faster than 75% in 1 hour assumes the presence of infection, when other common causes are eliminated. This test is rather generally used and is considered rather accurate, but not 100% accurate. The electrocardiogram when studied serially may give information regarding the presence and course of the infection in the heart. Rather frequently in rheumatic fever the conduction of the nervous impulse, which you saw in the movie, is delayed in its passage from the auricles to the ventricles. In the electrocardiogram this is demonstrated by an increased P P interval. Sometimes the S T intervals are elevated or depressed as they are seen in coronary disease. With recovery these may return to normal or at least prolonged P R interval becomes stationary. Other changes are observed but none are so important as these. Of the clinical signs mentioned, probably the most valuable are increased pulse rate and changes in other heart findings from day to day.

In the more severe cases which diagnose themselves there is of course leucocytosis, fever, tachycardia, increased cardiac dullness, and even engorged liver and edema.

These signs and symptoms are usually present during the active stage of the disease, and it is especially important to differentiate the active from the inactive stage. It is during the active stage that we can do the most for these people, because every unnecessary bit of work the heart does in this stage retards healing that much longer. Consequently, during the active stage, the patient is automatically limited to a minimum of activity according to the severity of the disease. With marked symptoms bed rest should be absolute 100% of the time. As the degree of severity is less the patient is permitted a proportionate amount of exertion. After all signs of activity of the disease have subsided, the patient resumes his physical exertion according to the functional capacity of his heart.

Treatment during the active stage is a tedious affair for the patient. The more sick he is the better the cooperation. It is easier to control all phases of the treatment of rheumatic heart disease in an institution, but with intelligent parents or with an intelligent adult patient, treatment can be carried out satisfactorily in the home with the least expense. Absolute bed rest is indicated as long as there is fever and an in-

creased pulse rate. Large quantities of fluids and large quantities of salicylates are next in order. The salicylates should be used in quantities just short of causing symptoms even up to 150 grains a day. These and other details of treatment such as wrapping sore joints in blankets and heat applications require no discussion.

When the symptoms are of a very low grade it is rather difficult to keep the patient on restricted activity. Most of them, however, will limit themselves to activity that will not cause fatigue, dyspnea, or palpitation when they are aware of the fact that they have heart trouble. It doesn't matter about those that knowingly refuse to take the proper care of themselves.

The average course of a first attack is from 4 to 8 weeks. After this is over and all tests show that activity has ceased, the suspicious sources of infection are removed, e. g., tonsillectomy is done within a month or two after subsidence of the infection. Sometimes the rheumatic fever persists and becomes established and follows a chronic course. In such cases the preinfection very often has also become chronic and remains as a feeder to prevent recovery. Under these circumstances we are in somewhat of a dilemma. I would drain a tonsillar abscess but I would not advise removal of the tonsils unless the rheumatic fever was of a very low grade. Similarly I would have a sinus irrigated through the natural opening, but I wouldn't advocate an open operation. If after three months or so and the rheumatic fever is of a sufficiently low grade and shows no signs of letting up, I would then gradually remove the various foci of infection. This cannot be done too cautiously nor too deliberately as it is dangerous business and serious consequences can ensue. Fortunately most of these persistent cases are of rather low grade and can be handled in this manner. Where the rheumatic fever is of a high grade and even if it persists for months or years it might prove fatal to remove foci of infection and it is better to wait.

After all foci of infection are removed if the rheumatic fever persists it is time to use vaccines and bouillon filtrates either stock or autogenous. Non-specific protein therapy may also be tried. Whatever is done of this nature is still in a transitional stage. Every one who handles many of these cases finally limits himself to a few procedures. A certain percentage of cases receive splendid results, but care must be taken to prop-

erly evaluate our treatment. A first attack of rheumatic fever will almost always be cured within 6-8 weeks no matter what is used. A second attack likewise. But thereafter the attacks will hang on longer and longer and the previously successful treatment will then prove to be of no avail.

When all others fail, a good method of treatment for active rheumatic fever is by intracutaneous injections of autogenous bouillon filtrate,¹ It is never used in the presence of infectious foci and then only if established as a chronic case. When the foci of infection are removed, secure cultures and usually one or all three of the following organisms will be recovered: 1. *Streptococcus hemolyticus*, 2. *Streptococcus viridans*, and 3. *Staphylococcus hemolyticus*. These are grown on a dextrose brain broth for 10 to 14 days and are reinoculated several times. This broth is filtered through a Berkefeld filter and the patient tested by a skin test to see if he is sensitive to that particular bacterial toxin. Uninoculated broth is used as a control. If the patient is sensitive I then give him a course of from 8 to 10 intracutaneous injections of this filtrate with the dosage starting at 1/10 or 1/20 cc. and increasing up to 3/10 or 1 cc. The injections are given at 5-7 day intervals and the larger doses are divided and injected into 3 sites. No injections are ever made into the same site the second time.

The manner by which this method works, is, either by desensitization to the products of the growth of these organisms or by stimulating the reticulo-endothelial system to increased activity of its defensive mechanism.

In most instances where the activity of the rheumatic fever has not been stopped, the failure is due to persistent focal infection. That which is eliminated with the greatest difficulty is recurrent upper respiratory infection, especially nasopharyngitis. It is possible that a new mode of attacking this problem may raise the percentage of cures. The naso-pharyngitis is being treated² by nasal instillations of the bouillon filtrate and the frequent cold cases are given injections³ of

pooled vaccines and filtrates from current seasonal colds and protective measure.

Stock vaccines or filtrates are not used except to fill in while waiting for the preparation of autogenous sera.

The final step in treatment of these active cases, who cannot be cured by these methods, is to advise a warm, dry climate such as is found in New Mexico and Arizona. It is known that in some of the tropical countries rheumatic fever does not exist. Such a place is in Puerto Rico and I believe another is in Argentina. Unfortunately the condition recurs when the patient returns to our north temperate zone climate and especially does it return if some focus of infection remains.

Then finally comes the problem of advising patients, whose rheumatic fever has become inactive, how to live. They most certainly should know that each succeeding attack becomes progressively worse so that they will take the proper precautions to avoid them. Such precautions are the avoidance of fatigue, chilling, direct exposure to other people with colds, and all forms of infection. Then the important though simple job of estimating the functional capacity of their hearts is the last step. Simple tests are devised for this purpose. I use 20 hops on each foot and normally the pulse rate rises to around 100 and returns to the original rate in one minute. If the pulse rate increases to 140 or so and stays there several minutes, I know that the patients' ability to perform work is markedly limited and he is placed in Class II B. If there is a less marked response, say to 120 for 1 or 2 minutes he is placed in Class II A with slightly limited activity. If the exercise tolerance test is normal, he is placed on unlimited activities, Class I. There are other more exact exercise tolerance tests, e. g., 2 steps each one foot high so that the patient lifts his body weight a known height and exerts a certain number of foot pounds. A very important test to remember is the patient's response to the activities to which he or she is accustomed. If the patient follows the rule to do nothing that causes undue fatigue, dyspnea, palpitation, or edema he will be living within his physical means.

I would like to emphasize the tremendous benefit secured by patients with either active or inactive rheumatic fever who are obese or are anemic if you correct only these conditions. Immedi-

1. Local Immunization. 1927. A. Besredka. Immunity in Infectious Diseases. 1930. A. Besredka. Both published by Williams and Wilkins.

2. Method of treatment devised and developed by Drs. W. E. Post and W. L. Wood.

3. Method of treatment devised and developed by Drs. W. G. Hibbs and W. A. Thomas.

ately their cardiac reserve is increased a great deal merely by eliminating this excess heart strain.

Conclusions: The treatment of rheumatic fever includes:

1. Prevention by the proper care of and elimination of the pre-infections.

2. Early recognition, by knowledge of clinical signs and symptoms.

3. Differentiation between active and inactive stage.

4. Adequate treatment until inactive and restriction of physical activity within the patients' limits according to the functional capacity of his heart.

5. Susceptible patients avoid predisposing causes such as fatigue, chilling, and exposure.

PLACING THE RESPONSIBILITY FOR INCREASING CANCER MORTALITY

E. G. C. WILLIAMS, M. D.

DANVILLE, ILL.

Among the captains of the men of death cancer holds second place, ranked only by diseases of the heart. It has risen from comparative obscurity in fifth place to its present commanding position during the past four years. If we consider this fact alone and without an analysis of the causes for this increase, the situation is gloomy indeed and our work for the control of cancer appears fatuous and without foundation. But we must consider the fact that the age distribution of our population has been shifting toward a preponderance of older people and that this shift is bound to continue for years to come. We can see that with the eradication of typhoid, malaria, smallpox, diphtheria and other diseases that formerly decimated the ranks of the younger population many more people are living long enough to reach the age when cancer expectancy is naturally increased. Since every one must die sometime it is obvious that if the death rate of one disease decreases there must be a relative increase from other causes and the next in rank will be advanced. Fundamentally much of the increase in cancer mortality is due to the accomplishment of preventive medicine, a back handed compliment to a great work.

In addition to this relative death rate we find

an increase in the specific death rate per 100,000 of any particular age group. This is partially due to better diagnosis and reporting of cancer deaths that were formerly attributed to other causes. But after we have considered these unavoidable causes the fact stands that the cancer death rate is entirely out of proportion to cancer incidence and the thing of immediate interest is the relation of the medical profession to this ratio and what we may be doing toward correcting the situation.

We are teaching that cancer can be cured if treated properly and without delay. To this we must add that to a great extent cancer may be prevented and bend our efforts toward closer examination of all of our patients, recognition and correction of precancerous or border line conditions and instruction of the families that look to us for physical advice and care.

In the treatment of cancer we are ready to agree among ourselves that there are two acceptable methods—surgery and radiation. Under the heading of surgery we include operative, electro-surgery and any possible mechanical method of destroying or removing the new growth. Under the heading of radiation we include the various forms of x-radiation and radium. In making this plot of methods I do not infer that these are or should be the representatives of different schools of thought in cancer therapy, but that if the cancer patient is to receive the greatest benefit from treatment, the individual case and patient must be analyzed and the method or methods used that are indicated for the case in question. Where cancer therapy is practiced from a strictly surgical viewpoint, many cases will receive surgical treatment where it is contraindicated and patients may be pronounced incurable when they are only inoperable because the surgeon is not aware of the possibilities of other methods of treatment or is even disdainful of nonsurgical methods.

The man who practices Roentgenology as a specialty may develop a warped viewpoint and attempt x-ray treatment in cases that are primarily surgical, or which should have radium treatment. He may become so blinded by his own glowing tubes that he automatically criticizes any suggestions of surgical treatment.

The radium therapist who takes cancer cases as they come and tries to treat all of them by

this one method is poorly equipped mentally and physically, so much so that the possessor of a small quantity of radium may become an absolute menace to the welfare of his community. The practice of cancer therapy by mail and the indiscriminate rental of radium have become such vicious practices that they are at last reaching the attention of our societies.

This slightly acrimonious criticism is made to direct your attention to the fact that there is no single method of cancer treatment that is self-sufficient and that any man or group of men that is treating cancer without a coordination of all of these methods is failing in the fundamental duty of physician to patient. A background of an alert conscience and a dominant sensibility to the rights of the patient is needed in this work. This background is ascendent when the radiologist turns a carcinoma of the fundus over to the surgeon and the surgeon turns a carcinoma of the cervix over to the radiologist, and when radiologist, surgeon, internist and pathologist meet to discuss the proper treatment for any individual case of cancer the heavens almost glow with preparation for the dawn of a millenium.

I appreciate that I am addressing a group of individuals with extensive and specialized training in general and chapter surgery and that the idea of group practice in the treatment of cancer is out of consideration with the most of you. Your viewpoint as individuals is the same as mine, as I am not associated with any fixed group and still try to assert a certain amount of rugged individualism. But with my viewpoint as an individual worker, I have found that a wide cooperation with other branches of medicine is possible and profitable to all concerned. I find no hesitation in referring any patient to a general surgeon, a gynecologist or internist for an opinion. A trade off of help has become possible and somehow the financial side seems to balance as the years pass without fixed fees on individual cases.

There are some elements in fixing the responsibility for cancer mortality that must be considered separately.

The element of conscience and personal honesty I cannot solve and am not in position to discuss. To me the willful trafficking in people's health and life by use of medical or surgical treatment known to be wrong or contraindicated

is the filthiest form of racketeering in existence. I believe that is enough to say on that topic.

Most cancers are curable if treated properly and without delay. In this statement we cover the two vital points in cancer control and assert the possibility of fixing the mortality responsibility and lowering the death rate. To fix this responsibility we may follow the course of action of an average cancer patient.

A man who develops a suspicious lesion of the lip will follow one of two courses. He will listen to the advice of a lay friend or of his family physician. If he listens to the lay advice it may be good or bad and I am happy to say that this advice is becoming better year after year, thanks to the constant educational work of the American Society for the Control of Cancer and the various medical societies. Very frequently, however, the lay friends have their entire outlook founded upon one or two unfortunate cases and will advise against any regular medical attention and will persuade the patient to let it alone and let nature rule or will provide him with the literature of some nostrum factory or induce him to go to some one who has a miraculous "Cancer Cure" that he got from an Indian medicine man.

It is very gratifying to find that the work of cancer education is bearing fruit and that in communities where talks on cancer have been made to school assemblies, women's clubs and service clubs there is a decrease in time and difficulty in instituting proper treatment.

If the man with the suspicious lip lesion goes to his family physician his course may progress through the immediate institution of proper treatment and ultimate cure or it may be dangerously delayed by an uncertain attitude of the physician who through desire to spare the feelings of his patient or through mental indolence advises him to wait until it causes him some trouble. This attitude is comparable to advising a man in a hole with a rattlesnake to pay no attention to the snake until it bites him. The time to crush the snake is now.

May I quote from Drs. Leuceutia and Weller in the report of the Michigan cancer survey:

"The fate of the cancer patient rests very largely with the first medical adviser whom he consults. It is unfortunately true that the greatest single cause of delay between the first consultation with a physician and the institution of treatment is poor advice on the part of

the attending physician. A patient with carcinoma of the stomach can pass undiagnosed through the hands of ten physicians before a diagnostic x-ray examination is suggested (an actual case). The local physician is the very foundation of an organization for the prevention and treatment of cancer. By periodic physical examinations which are worth while and not perfunctory, by recognition and elimination of so-called precancerous conditions, by warning against occupational hazards known to be cancerogenic, by serious consideration of all suspicious signs and symptoms, and particularly by referring the patient to diagnostic clinics for those special regional examinations which may be indicated, the physician in first contact with the patient becomes the "key-man" in the organization. It is recommended that through more extensive instruction along these lines in medical schools, and by postgraduate clinics, conferences, and lectures, the profession be kept fully informed of advances in the fields of endeavor suggested, and made more keenly conscious of individual responsibility toward the potential cancer patient. Similar instruction is appropriate for the dental profession."

If we really intend to try to lower cancer mortality by producing a sense of responsibility and by securing early institution of proper treatment we will have to do more than criticize existing conditions; we must offer a definite program of education and assistance. This program must be directed toward making the lay public conscious of the fact that "most cancers are curable if treated properly and promptly." They must be so acquainted with the danger signals of cancer that they can recognize them and go immediately to consult a physician. This lay program can be carried out by talks to men's and women's clubs, to high school assemblies and in the churches. Books, literature, posters and speakers for this work will be furnished by the American Society for Control of Cancer and the Educational Committee of the State Medical Society without direct expense to the local societies.

With the advance of cancer mortality from fifth to second in rank during the past four years, it is imperative that different phases of cancer control should have an important place in the program of the county medical societies. If the society meets ten times during the year, at least three programs should deal with different phases of the subject. These programs should be presented by men who can give definite help and should be of consultation value to every member of the society, the general practitioner and all representatives of the chapter specialties. Within the past year in a county society meeting I sat through an hour and a half talk on the detailed

technique of the surgical treatment of cancer of the sigmoid and rectum. It was a fine demonstration of what the speaker had done in this infrequent and complicated procedure but was generally worthless and tiresome to the society as a whole. The reaction was not good and the result will be a small crowd when the next cancer program is announced. The discussion of cancer of the colon and rectum could be made interesting by presenting the symptoms that usually lead a patient with the disease to consult his physician and how the physician might carry on the examinations necessary to establish a diagnosis. This phase of the subject will appeal to every clinician while the technique of surgical removal of the sigmoid will appeal to very few in the average county society.

There is a definite need for emphasis of the recognition of precancerous conditions and repetition of the danger signals. A symposium on danger signals with five to ten minute talks by men representing the special practices will bring out a wealth of good material and command the interest of a large group.

"The Prevention, Diagnosis and Treatment of Cancer of the Lip" is a subject that always brings out a free discussion.

"Cancer resulting from neglected cervical laceration" draws the interest of another group and emphasizes the need of postnatal examination and care.

The Canti film program with pathology exhibits and demonstrations can be repeated every two or three years and always draws an interested audience. When this film is shown to lay audiences with a nontechnical explanation and description it produces an appreciation of the extent of cancer research and furnishes a topic for conversation at many bridge tables.

The greatest possibility for lay education lies in the daily contacts of physician and patient. Lectures, displays and demonstrations are valuable but the direct contacts and careful answering of questions bring confidence and give people the opportunity to quote "My Doctor."

There are eight basic questions in cancer control. Part or all of these will surely be asked in any conference between physician and laymen. And almost any general question on the subject can be paralleled with one of the eight. They are:

1. What is cancer?
2. What causes cancer?
3. Is cancer contagious?
4. Is cancer an inherited disease?
5. Is there any shame or disgrace about cancer?
6. Why is cancer increasing?
7. Can cancer be prevented?
8. Can cancer be cured?

The answers to these questions should be as familiar to physicians as their prescription symbols. A man who can answer these without hesitation or evasion is indeed well informed in the principles of cancer control. In talking with laymen use the word cancer rather than malignancy, malignant growth, neoplasm, carcinoma or other terms which may confuse the patient and lead to false impressions. Cancer is an ugly word but we deal with an ugly and vicious condition. Frankness will bring results.

Through years of cooperation and work the medical profession has put screens on our doors and windows, sanitary plumbing in our bath rooms, sewage disposal in our cities. It has almost eliminated epidemics of contagious diseases. It has produced numberless amenities of living. It has dug the Panama Canal. By cooperation and personal effort it can reduce cancer mortality. Cancer can and must be controlled.

DISCUSSION

Dr. Henry W. Grote, Bloomington: Dr. Williams has covered the subject of the general psychology of the cancer patient very carefully and thoroughly. I would like to emphasize one statement he but referred to, that is, the family physician should enter into the problem more than he does. He is the medical foundation or the corner stone of the family. Unfortunately some workers in x-ray and radium had, for several years in the past, published case reports in lay journals, of cases cured by x-ray and radium. This put into the minds of the laity the idea that surgical operations were not necessary, but that they could go to a laboratory, lie on a table, be perfectly comfortable and be cured. This idea is still in the minds of the common people to a large degree. The judgment of these people is evil and their wisdom is zero.

The better sort of the common people have a peculiar and complaisant judgment, and run about consulting the user of a method upon which they place their own evaluation. They take advantage of any seeming difference of opinion existing between reasonable and honest members of the profession. It will probably be many years before this sort of misinformation is eradicated.

In my experience I have had lots of people come in who had been operated on and had a recurrence, and

they would not go back to the family physician or the surgeon. Some roentgenologist appealed to them and if I happened to be the one, they would tell me they expected to be cured. In the treatment of some of them we occasionally achieved remarkable results. Most of them, however, died of carcinomatosis. Some of us being enthusiastic are carried away with the idea that we can cure these patients. Recently I have refused to have anything to do with a case of suspected cancer unless I could have a consultation with the family physician and the surgeon, so that the patient will understand that possibly they will have to be operated on, and probably will. The family physician is the one who is going to see them at the wind-up. We all thoroughly understand each other. In the last seven or eight years the efforts in my particular office have been rather gratifying. The results have been better, and the relationship between patient and surgeon is very much better. Why not give up having any argument with the surgeon? I have many patients thank me for doing all I could. The cooperation of all concerned is the real crux of the whole matter.

Dr. Frank L. Rector, Evanston: In my work as field representative for the American Society for the Control of Cancer I am constantly running up against the problems that Dr. Williams has so ably discussed, particularly the relation of the physician to this question. Our Society feels that the control of cancer rests on the educational interest to be developed by the physician and the laity.

As we study the cancer problem we find that there are about three living cases for each death at any given time. In Illinois there were 9,200 deaths from cancer in 1933, so there are in the neighborhood of 27,000 to 30,000 cancer patients in the state at this time. It is up to the physician to become proficient in the management of these cases.

The development of tumor services in certain hospitals is a step forward in this control program. We all agree that cancer is not a one man disease. No one physician should assume the entire responsibility for diagnosis and treatment of a given case. As the previous discussor said, it is a cooperative problem between the family physician, surgeon, pathologist, and radiologist. The first physician seeing a cancer patient determines the outcome of that case. Some physicians have the indefensible habit of waiting to see what will happen in the next few weeks or months. We all know that cancer is an emergency condition, not for treatment, but for diagnosis. When the diagnosis has been established the indicated treatment can be carried out. We have to overcome the waiting on the part of the patient. The average woman with a lump in her breast waits six months before going to her physician. If she has vaginal bleeding she will wait eight months. The physician is not responsible, except in a remote sense, for this waiting period on the part of the layman, but for the waiting that ensues after the patient gets into his hands he is responsible. The more the physician contacts his patient with educational suggestions the shorter this waiting period will become.

Studies made at five-year intervals at the University Hospital, Iowa City, Iowa, have shown a marked decrease in the waiting period indulged in by the physician after the patient gets into his hands, so that is a hopeful sign.

I feel, and I am sure that the officials of the American Society for the Control of Cancer feel, that the control of this problem lies fundamentally in the hands of the medical profession. No other group has such close contact with the cancer individual, and the profession must further stimulate its members to an appreciation of what the cancer problem really is and the control measures to be employed. The American Society for the Control of Cancer stands ready to assist in this work to the extent of its resources.

DOCTOR GEORGE FRANCIS SUKER
1869-1933

BEULAH CUSHMAN, B. S., M. D.
CHICAGO

George Francis Suker was born in Detroit, Michigan, October 12, 1869, son of Herman Suker, the proprietor of a large book store on Gratiot Avenue.

His father was a Prussian, who with his wife came to this country in 1862, during the great exodus from Germany of young men to avoid the compulsory military service.

His mother, Emelia Toelle-Suker was an accomplished composer and organist.

As a lad Doctor Suker finished the Detroit Public High School, and entered the Academy, where he was tutored in Greek, Latin and German. He studied medicine at the University of Michigan in Ann Arbor, graduating in 1892.

He served as interne at the University Hospital in Ann Arbor from 1892-1893, and following this service became resident interne in the eye, ear, nose and throat service under Professor Carrow, where he remained until 1895.

It was at this time that his interest became centered on the ocular brain centers, and interesting work in the early years of bacteriology was carried on under Doctors Vaughn and Novy of Ann Arbor.

During these years at the hospital he conducted some of the undergraduate classes and clinics, and was a most enthusiastic teacher, and this he continued to be the remainder of his life.

Doctor Suker's father was prejudiced against

sending his son to Europe for post graduate study, as he had taken refuge in this country, and he encouraged the prolonged clinical study at the University and other clinics here.

In 1895 Doctor Suker went to Toledo, and began the practice of medicine, specializing in eye, ear, nose and throat, and remained until 1901.

In 1901 he came to Chicago, and limited his work to ophthalmology.

Doctor Suker became a member of the ophthalmological staff at the Post Graduate Hospital in 1901, and was the active head in ophthalmology for the last twenty years of his life. It was in this institution where he met and taught many ophthalmologists from all parts of the country. In the experimental laboratory he was able to carry on his studies of the optic pathways and many other interesting clinical problems,

From 1901 to 1906 he was also instructor in ophthalmology at the College of Medicine, University of Illinois, when Doctor Casey Wood was professor.

Later he spent some time at Rush Medical College under Doctor Hotz.

During the winter of 1909-1910 he became secretary of the Chicago Medical Society, and their programs that year were as outstanding as in 1928 when he was president of the Chicago Ophthalmological Society. He showed his great organization ability, as he did in the great war later. Among others, in those early days, he invited Doctor Spiller of Philadelphia and Harvey Cushing of Boston to discuss brain tumors.

Doctor Suker also planned a group of public meetings at the public library, in which medical problems were taken up and discussed by authorities for the education of the lay audience. The hall was always packed to the doors. These subjects included: The Boy Criminal and Juvenile Court, by Judge Lindsay and Mrs. Ella Flagg Young; Certified Milk in Chicago, by C. S. Bacon; Tuberculosis in the Home by Frederick Tice, and Surgery from the Layman's Standpoint, by C. S. Barrett.

As secretary of the American Academy of Ophthalmology and Otolaryngology from 1905 to 1911, its president in 1912, and Councilor afterwards, Doctor Suker helped to plan and

was able to put into action the Section on Instruction, which has meant so much to the development of the Academy. During this time also the agitation for a standardized training in ophthalmology and otolaryngology was found necessary and the committees were appointed to consider such plans. After a great deal of preliminary work, and with committees from the other National societies the American Board of Ophthalmic Examinations was organized in 1916.

It was in 1912, 22 years ago, that Doctor Suker as Secretary, and Doctor W. O. Nance, as Chairman, opened the first meeting of this section in the sun parlor of the Hotel Leland, Springfield, Ill. This was two years after the suggestion had been made and several committee meetings were held to make special sections possible. The same year the Public Health men organized their section. As far as I can find, the Illinois Medical Society was the first state society to have special sections.

An outstanding service was given to Cook County Hospital as ophthalmologist from 1913 to 1931, and the large clinics which he organized at least once a year, through the years, for the ophthalmologists, will long be remembered. At these clinics Doctor Suker and the internes spent many hours examining all the patients in the different medical and neurological wards for interesting ophthalmological findings, as well as the patients who presented themselves to the eye department. These patients, from 75 to 100, would be seated in the big hall on the second floor, back to back, and a note was pinned on the coat with the diagnosis and the most interesting points noted. A string of electric lights was hung before the universal use of the electric ophthalmoscope.

After two hours or so in which the cases were examined by the visiting doctors, the cases would be taken up for general discussion. The internes and other attending men would present some of the more unusual and rare cases. But always Doctor Suker was the instigator and prompter to present this wealth of material at County as "The Teacher" to the many interested practitioners, many of them who had been students of his at some time.

Two notable cases, that of "Peter", whose vitreous was tapped and replaced by normal salt

solution eight or ten times following an iridocyclitis and cataract extraction, probably sympathetic in origin, and still retains 0.8 vision, and "Celia" after bilateral cataract extraction and many intraorbital injections, with retinitis pigmentosa, and who also retains central vision of 0.6 and 0.8 respectively, are a great challenge to us not to give up.

In September, 1917, Doctor Suker volunteered and left his busy practice and hospital connections, and went to Camp Custer as a Major, in the Great War, and became chief of the head surgery section. Doctor N. N. Wood, his commanding officer, wrote "that the avidity with which Doctor Suker applied himself to anything which he or his associates saw that should be done was very inspiring and contributed very greatly to the success of whatever part of the hospital was the scene of his activities. He took a serious interest in the Y. M. C. A. in the camp at large at Camp Custer, and on one or more occasions I recall his having given Sunday night addresses, which we spoke of among ourselves as "sermons." He always gave me the impression of being thoughtful and serious-minded in a religious way, but he never intruded his views upon others and even though I was aware of his giving these talks and have known him intimately since the war, I do not know if he was a member of any church."

The treatment of optic atrophy which he carried on for many years by the use of bichloride of mercury injections into the ventricles and later into the cisterna magna was summarized and presented before this society in 1932.

His medical library and the best medical equipment possible for his office, were his hobbies in medicine.

As an associate of Doctor Suker's the last eleven years of his life, I learned of the thorough student that he was, an indefatigable reader of all the ophthalmic literature, foreign and domestic, for he was an able linguist. His versatile and active mind could grasp the problems presented by the research worker immediately, and apply it to some clinical problem in his own mind. This is shown in the 77 contributions to literature, which include the reports of the use of many new drugs and instruments.

His high regard for ability was always paramount to any personal dislike.

It is most touching the high regard which his patients hold for him as a friend. There are few days go by that as the patients see his picture in the office, that tears are not silently shed.

Doctor Suker was a most considerate, honest and gentle man with his patients, yet when the occasion demanded he was most firm.

He was a true friend and his keen inquisitiveness and real scientific idealism as expressed by Doctor Wilder made up the great man that was our Doctor Suker.

25 East Washington St.

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TREATMENT OF CHRONIC TYPHOID CARRIERS

LARS GULBRANDSEN, M. D.

From the Department of Bacteriology,
University of Illinois College of Medicine,
and Research Laboratories,
State Department of Public Health,

CHICAGO

Although typhoid fever no longer holds a leading place in general mortality statistics, the chronic carriers of typhoid bacilli remind the epidemiologist that this disease is still a potential public health hazard. The numerous attempts that have been made to cure the carrier state by chemotherapy and immunological procedures have been unsuccessful, and surgical re-

moval of the gall bladder is generally considered the most reliable means of treatment at the present time (Browning, et al.,¹ Bigelow and Anderson², Seftner and Coughlin³, Vogelsaang and Haaland⁴). The facilities required and the risks attendant upon surgery, however, are evident to those concerned with the problem, and in states and districts where no provision for surgical treatment is made, control of the carrier depends upon educational and administrative measures. Both the surgical and administrative methods have their advantages, and still, the occurrence of typhoid and paratyphoid infections traced to carriers indicates that there is a demand for the development of a treatment for these persons which can be safely applied in communities with average medical facilities.

For the past two years we have studied the effects of repeated x-ray exposures over the liver region in chronic fecal *B. Typhosus* carriers. In all, twelve individuals have been under our observation, of whom five were males and seven females, ranging in age from twenty to sixty-eight years. The period over which they have been known to be carriers varies from two to twenty-five years. In two instances there was no history of clinical typhoid fever. All were free from gall bladder or hepatic disease as determined by a searching history, but in one patient, the gall bladder had been removed five years ago on account of stones.

The following procedure was used: All carriers were under observation for periods of one week to several months during which stool specimens were examined daily. Using standard Public Health Laboratory bacteriological methods for the bacteriologic examinations the output of typhoid bacilli in proportion to *B. Coli* in the stool was recorded in terms of percentage based upon colony counts of the plates. Endo's media was used. The effects of chologogues, such as ox-gall in $7\frac{1}{2}$ grain capsules given orally was likewise observed, and the records of these observation periods served as controls in estimating the effects produced by the x-ray exposures.

Following each x-ray treatment, the patients were asked to submit stool specimens once a day for two successive days, and at weekly intervals thereafter until the next exposure. One-

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CHART 1.

EFFECT OF X-RAY ON CHRONIC TYPHOID CARRIERS

Patient	Sex	Age	Years Since Typhoid	Type of Carrier	Average Output	No. of X-ray Treatments	Average Interval	Dose of Each	Average Output at Present	Period of Examination since X-ray was Discontinued
1. R. T.	M.	20	No history of typhoid	Persistent	60%	1	.....	100 r	0	2 years
2. B. V.	M.	48	8 years	Persistent	85%	16	10 days	500 r	0	10 months
3. L. P.	F.	25	2 years	Intermittent	50%	7	2 weeks	100 r	0	11 months
4. J. K.	F.	64	6 years	Persistent	75%	6	3-3 weeks	100 r	0	12 months
5. M. W.	F.	68	25 years	Persistent	50%	3	3-2 weeks	100 r	10%	12 months
6. E. H.	F.	65	3 years	Persistent	70%	3	3 weeks	100 r	20%	18 months
7. H. M.	F.	48	11 years	Persistent	50%	3	3 weeks	100 r	15%	18 months
8. C. E.	F.	40	11 years	Persistent	25%	5	3-3 weeks	100 r	20%	18 months
9. M. A.	F.	46	17 years	Intermittent	30	5	2-2 weeks	100 r	30%	14 months
10. G. P.	M.	38	No history of typhoid	Persistent	90	3	3 weeks	100 r	80-90%	16 months
11. J. G.	M.	50	6 years	Persistent	75	3	2 weeks	100 r	90-98%	Died Feb. 1933
12. E. T.	M.	49	16 years	Intermittent	35	4	5 weeks	100 r	35-98%	14 months
							3 weeks			

fifth skin erythema dose* of x-ray was given over the hepatic region at two to three-week intervals from purely an arbitrary standpoint. It was felt that this quantity could be used repeatedly with safety, and no variation in the dosage was made in this series except in one instance. In this case, the individual preferred to have the treatments given by his physician, who increased intensity of exposure and shortened the time interval between treatments.

Chart 1 summarized the results obtained up to the present time. The twelve carriers fall into three groups. The first is made up of four individuals who were rendered *B. Typhosus* free, the second of four whose total output of *B. Typhosus* in the stool was reduced, or made irregular, and the third of four carriers in whom x-ray has produced no apparent effects. Graph 1A, 1B and 1C present typical protocols during treatment periods of one patient from each of these three groups. Individually, the case records are as follows:

Case 1. R. T., male, aged 20 years. No history of typhoid fever. No history referable to disease of the gall bladder. Discovered as a carrier in 1930 through routine survey of dairy students at the University of Illinois. Average daily output of typhoid bacilli in the stool 60%. He was under observation in our medical wards in the hospital for a period of two years, during

which vaccination, both oral and parenteral, bacteriophage, and foreign protein therapy were without effect. After one deep x-ray exposure over the liver region the stool became negative for typhoid and repeated examination of the stools and duodenal contents have been negative for the past two years. This is the only patient in the series on whom duodenal examinations were made.

Case 2. B. V. Male, aged 48 years. Typhoid fever in 1925 after which stool specimens failed to become negative. Average daily output of *B. typhosus* in stool was 85%. No duodenal examinations were made. This man preferred to have x-ray treatments given by his physician, who used 500 r skin erythema doses at weekly and ten day intervals. Several severe reactions, characterized by nausea, vomiting and abdominal pain were encountered, but the patient insisted upon continuing with the treatments. Sixteen exposures were given, although the stools became negative after the tenth treatment. The patient was especially concerned about his condition, and sent specimens to a private laboratory for examination at the same time he submitted them to us. Up to the present time he has been free of *B. typhosus* for a period of ten months, and has had no complaints in spite of the intensive therapy.

Case 3. L. P. Female aged 25 years. Had typhoid fever in 1931. Intermittent carrier, excreting on the average about 50% typhoid bacilli in stools during positive periods. No history of gall bladder disease. She was given seven x-ray exposures at two week intervals during the winter and spring of 1933. One week after the last exposure stools became negative and have continued negative up to the present time.

Case 4. J. K. Female, aged 64 years. Typhoid in 1927. Gall bladder removed four months after convalescence for cholelithiasis, but stools continued to be persistently positive for typhoid with an average

*The exact dose was 170 P.K.V., at 25 ma. filtered through ¼ mm. copper and 1 mm. aluminum at a focal distance of 50 cm. The time of exposure was two minutes.

daily output of about 75%. She was given six x-ray treatments, the first three at three week and the last three at two week intervals. Graph 1 represents record of her treatment period.

Case 5. M. W. Female, aged 68 years. Typhoid in 1909. Average daily output of *B. typhosus* in stool 50%. No history of gall bladder disease. Three treatments at three week intervals. Following the third treatment the stools became negative and remained so until seven weeks later when the patient developed some pustules about the face and ran a sub-febrile type of temperature. Since that time she has excreted typhoid bacilli in the stool intermittently. See Graph 2.

Case 6. E. H. Female, aged 65 years. Typhoid in 1930. Average daily output of *B. typhosus* 70%. No history of hepatic or gall bladder complaints. Three treatments at three week intervals resulted in a reduction of the total colony count of *B. typhosus* in the stool to about 20%. In the interim between the third and the proposed fourth treatment, the patient suffered from a cardiac disturbance that confined her to bed for two months. Treatments have not been resumed on account of this condition.

Case 7. H. M. Female, aged 48 years. Typhoid fever in 1922. Persistent carrier since that time excreting on the average of 50% typhoid daily. No history of gall bladder complaint. Three treatments at three week intervals rendered her typhoid free for a period of three weeks, and for the last two months of observation during which twelve specimens were submitted five were positive with a total average output of about 15% typhoid.

Case 8. C. E. Female, aged 40 years. Typhoid fever in 1922. Persistent carrier since that time. Average 25% typhoid bacilli in stool. No history of gall bladder disease. She was given three treatments three weeks apart followed by two at two week intervals. After the third treatment the typhoid output became irregular with periods of one to four weeks in which stool specimens were negative.

Case 9. M. A. Female, aged 46 years. Typhoid fever in 1914. Intermittent carrier with an average output of 30% typhoid in the stool during positive periods. Following the first two x-ray treatments which were given three weeks apart the patient continued to submit specimens for examinations but failed to report for further treatment until three months later. Two more exposures separated by a three week interval was given. Aside from a reduction in the colony count of typhoid bacilli on the second and third days following each treatment, the output of *B. typhosus* in the stool has continued to be irregular.

Case 10. G. P. Male, age ?? No history of typhoid fever. Known carrier for years. Daily average output of 90% typhoid bacilli in stool. Three x-ray treatments at two week intervals failed to effect a reduction in the total daily output of *B. typhosus*. Graph No. 3 represents his daily record while under observation in our medical ward.

Case 11. J. G. Male, aged 50 years. Dairyman. Typhoid fever in 1926. Persistent carrier with an average daily output of 75% *B. typhosus*. No history

of gall bladder disease. Unsuccessful attempts were made to cure him of his carrier condition by oral phage and foreign protein therapy. From July to November, 1932, he was given three x-ray treatments over the liver area, and although there was marked drop in *B. typhosus* output on the first and second day after each exposure there was no other appreciable effect produced. In February, 1933, we learned that he went to a hospital of his own accord for a cholecystectomy and died of post-operative pneumonia.

Case 12. E. T. Male, aged 49 years. Mechanical research assistant. Typhoid fever in 1917. Intermittent carrier, with an average output of 35% *B. typhosus* in stool during positive periods. He was given four x-ray exposures over the liver region at three week intervals during February, March and April, 1933. On the first and second day after each exposure there was a marked reduction of *B. typhosus* output, but during the intervening periods some of the plates examined contained as much as 95% typhoid bacilli.

These studies are being continued.

The results obtained in this series of individuals indicates that repeated exposure to relatively small amounts of x-ray in the treatment of typhoid carriers has favorable possibilities, but the factors which determine success or failure in each particular case are difficult to estimate at the present time. It is evident that in the majority of these patients, some active bactericidal or physiological mechanism has been operative. Following each irradiation, the total output of *B. typhosus* in the stool has been reduced, especially during the first two or three days after exposure. This reduction is permanent in some, transitory in others. Bacteria, as shown by Dall'Acqua and De Antoni⁵, exhibit a certain degree of radiosensitivity. These workers exposed cultures of bacteria (*B. coli*, *Cholera vibrian*, *B. Dysenterica Shiga*, *B. pyocyaneus*, *B. prodigiosus*, staphylococci, and streptococci) to graded potentials of x-ray, and found that gram negative organisms were damaged by relatively small amounts, but larger doses were required for straphylococci and streptococci. But while this observation is of interest, the bactericidal effect of the x-ray themselves is probably negligible in x-ray therapy, and it cannot account for the phenomenon observed in carriers who were cured. The physiologic reactions appear to be of greater significance.

Arnold's work⁶ has demonstrated that in normal, healthy individuals the mucosa of the duodenum and upper part of the jejunum possesses

a high degree of self-disinfecting power. This power is intimately dependent upon the physiologic condition of the stomach, and any factor which tends to stimulate the secretory activity of the gastric glands increases the efficiency of the duodenum to destroy bacterial life within its lumen. The observations of other investigators⁷ indicate that all the organs in the splanchnic region participate in this increased functional activity, and Muller and Petersen⁸ have shown that foreign protein injections are accompanied by increased function and capillary dilatation in the liver.

There is little known about the physiologic reactions which occur in the gastro-intestinal tract and abdominal viscera after exposure to x-ray. A few observations have been reported which are suggestive, but detailed studies concerning the effects produced by graded intensities of irradiation are wanting. In general, the fact that small amounts of x-ray are stimulating, and large doses harmful to living tissues is well known. Antonioli⁹ exposed guinea pigs to x-rays, and found that weak, and not too frequent irradiations increased the bactericidal action of the tissues, especially the liver and spleen. After intensive doses, on the other hand, these same organs exhibited the most pronounced reduction in capacity to destroy bacteria. Viviani¹⁰ exposed twelve persons to intensive irradiation (2,600 to 3,600 r units over both ventral and dorsal gastric areas at two to three day intervals) and found that gastric secretion after histamine in actions was inhibited, while Guggenberger¹¹ obtained higher mortality rates in mice which fed on *B. paratyphosus* and subjected to heavy irradiation than in unirradiated controls. Again, Petersen and Saelhof¹² in investigations on partially depancreatized dogs, found that small doses of x-ray over the pancreatic remnant stimulated its function and increased the sugar tolerance.

These observations on animals and normal human subjects, though not as complete as is desired, give some indication of the physiological processes that may take place after roentgen therapy. They show that small, stimulating doses of x-ray may create a condition of splanchnic activity. This activity consists of increased bactericidal capacity of the splanchnic viscera with dilatation of the splanchnic capil-

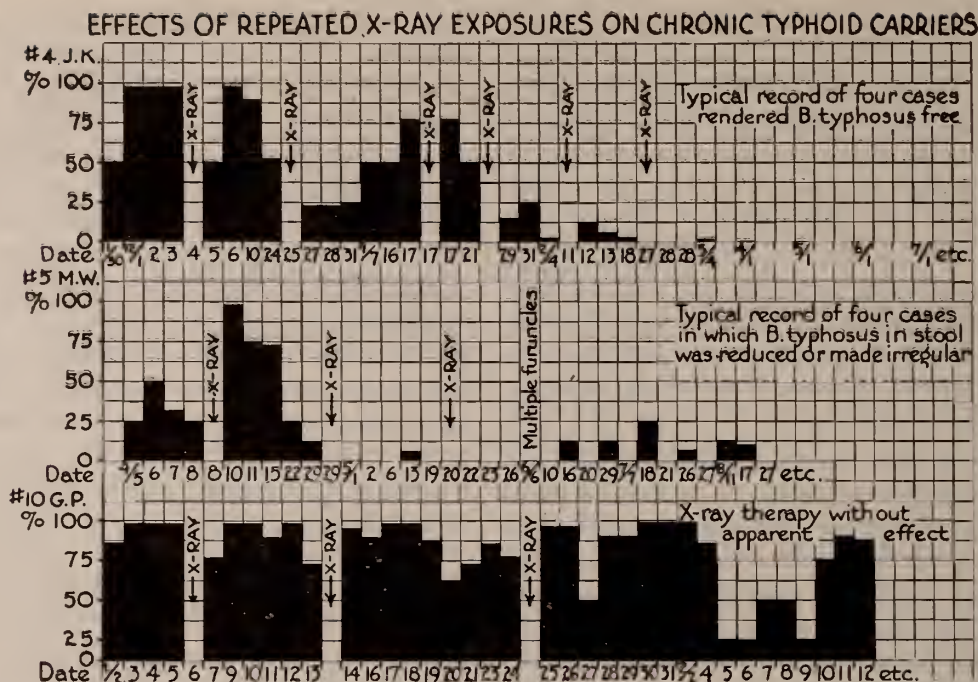
laries and increased functional status of the abdominal organs. In chronic carriers of enteric disease organisms the beneficial effects of such conditions may reach even farther. Merserschmidt¹³ claims that in chronic typhoid carriers there are inflammatory lesions in both the gall-bladder and biliary tract, and Mallory and Lawson¹⁴ in examining gall-bladders removed from chronic carriers found evidences of chronic inflammation in every case. There is a possibility that an active hyperemia is induced by irradiation in the inflammatory foci, which, after repeated stimulation by x-rays have a tendency to heal. Although all of our patients were normal insofar as the clinical history was concerned, various degrees of gall-bladder pathology might have been present without noticeable discomfort to the patient. It may be necessary to recognize the limitations of x-ray therapy for the carrier state where marked lesions of the gall-bladder or cholelithiasis exists. One of our patients, however, who had had her gall-bladder removed five years ago was cured of the carrier state after six irradiations at three-week intervals. This offers an interesting possibility to those carriers who have undergone cholecystectomy without cure.

In summary twelve chronic fecal carriers of *B. typhosus* in the city of Chicago have received a series of from three to sixteen x-ray exposure over the liver region during the past two years in an attempt to cure them of their carrier state. One-third of the cases have been rendered *B. typhosus* free for periods varying from ten to twenty-four months; one-third have evidenced a reduction in the total *B. typhosus* output in the stool, and one-third showed no change whatsoever. The results obtained are encouraging enough to warrant further study, and x-ray therapy is recommended to health agencies as a possible means of controlling the carrier state.

We are indebted to Dr. Adolph Hartung and Dr. Theodore Wachowski of the Department of Radiology, Research and Educational Hospital, for their willing assistance in this work.

DISCUSSION

Dr. Lloyd Arnold, Chicago: We still have our residual reservoirs in the recovered cases. Cleaning up the water and milk supply and isolation of cases has reduced *B. typhosus* reservoirs and restricted it, and now



we have the typhoid carriers. Heretofore we have had little to offer in the handling of this problem. This work was started four or five years ago, and I can say that we ran into this objection of the reaction of the x-ray treatments. As to the dosage, we are not sure. We are simply reporting our work as it is. I think the work illustrates very well the necessity of its being handled by the family physician and not by the health department. They prefer to go to the family physician. Of the patients we were able to handle, about 70 per cent. were relieved. In those whom we could not get to come for treatment, we do not get the proper results. I do think this method offers something worth while. Our results show that about 50 per cent. of these patients can be relieved and rendered *B. typhosus* free if we can get co-operation and treat them with x-ray. I think it offers an opportunity for the physician and x-ray man. They have to be examined repeatedly or else eliminated from the food industries. And I think if this is impressed upon them, and they are told that this treatment offers them an opportunity to return to work, we will have better co-operation.

Mr. H. E. McDaniels, Chicago: I should like to mention that in certain typhoid carriers who are x-rayed the typhoid bacilli are markedly altered in their characteristics. Even if the numbers of bacilli are not greatly reduced, their serological and biochemical reactions are often so changed as to raise the question—are these bacilli capable of causing typhoid fever? That question will have to wait, I suppose, until a suitable laboratory test is devised for estimating the virulence of typhoid bacilli.

Dr. Lars Gulbrandsen, Chicago (closing): The question has been raised as to whether repeated exposures to x-ray would produce any deleterious effect in the patient, but we have used a relative small dosage. In

one instance where the patient preferred to have the treatment given by his own physician, the physician increased the dose approximately five times. The first treatment he gave him was a total amount of 2,5000 units, and this patient suffered a violent reaction afterwards. On the second or third day he had a complaint of nausea, diarrhea and vomiting. When the syndrome was completed and he returned to apparently normal physiologic status, the dose was reduced and no further ill effects were experienced. Sixteen treatments were given to this individual before he was rendered *B. typhosus* free.

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THE TREATMENT OF ULCER OF THE CORNEA.

C. F. YERGER, M. D.

From the Department of Ophthalmology, Cook County Hospital
CHICAGO

During the past eleven years, 217 cases of ulcer of the cornea were hospitalized in Cook County Hospital. The vast majority of them were of the male sex. The ages ranged from 4 months to 83 years and they varied in percentage according to the decade, from the first to the eighth inclusive, as follows: 14, 7, 17, 14, 16, 18, 7, and 5 per cent. 24% or 52 cases were classified as serpent ulcer, 20% or 44 cases were hypopyon keratitis, and 11% or 25 were perforated ulcer of the cornea.

The complications and sequelae observed in the 217 cases of ulcer of the cornea were, besides the foregoing, descemetocoele 15 cases, or 7%, prolapse of the iris, 12 cases or 5%, staphyloma of the cornea, 10 cases or 4%, anterior synechia 7 cases or 3%, posterior synechia, 6 cases or 2%, and secondary glaucoma, 4 cases or 1%.

The operative treatment used in the serious cases consisted of delimiting keratotomy in 28 cases or 13%, conjunctival flap in 25 cases or 11%, paracentesis in 8 cases or 4% and Saemisch section in 5 cases or 2%.

The prophylactic treatment of ulcer of the cornea is very important, as 80% could be prevented by the proper care of foreign bodies in the cornea and the cure of chronic purulent dacryocystitis. Nearly all cases of infections of the lacrimal sac harbor microorganisms, especially the pneumococcus, and all we need is but a slight injury to the avascular cornea causing the opening up of a very small area of the epithelium which is the normal defensive mechanism of the cornea. All infections of the respiratory tract also contain bacteria which may infect the eye as suppurative nasal sinus disease, bronchitis, also infections of the throat, mouth and teeth. The normal conjunctiva is rarely if ever sterile and from 5 to 10 per cent harbor the pneumococcus or streptococcus. Foreign bodies in the cornea should be removed as soon as possible under aseptic and antiseptic precautions and be sure that the removal is complete for incomplete removal predisposes to infection

and ulcer of the cornea. The infected sac may be cauterized with trichloroacetic acid or resort to more radical surgery as the West or Toti operations or the complete extirpation of the lacrimal sac.

The active treatment of corneal ulcer used during the past few years at Cook County Hospital is the Gifford method; if the patient is seen in the early stage, i.e., within a few days of the onset of the corneal infiltration, the ulcer is cauterized with a 50% trichloroacetic acid solution. The pupil should be widely dilated on account of the associated iridocyclitis for which 1% atropine sulphate solution is used, one drop three times a day. Radiant heat or hot fomentations should be applied to the eye every two hours for 30 minutes each. Non-specific protein therapy is valuable and should be used early and repeated as needed. Boiled milk, 10 c.c. intraglutely or typhoid vaccine, intravenously, beginning with 50 million typhoid bacilli and increased as indicated. A bacteriological diagnosis should be made as early as possible making a smear and culture from the conjunctival secretion or from the ulcer. If the pneumococcus is found to be the causative organism, apply to the ulcer some powdered optochin and also instill a fresh 1% solution of the same every two hours day and night. If there is present a chronic suppurative dacryocystitis, do an immediate complete excision of the lacrimal sac. If the diplobacillus of Morax-Axenfeld is the cause apply a 30% solution of zinc sulphate to the ulcer and prescribe a 0.25% solution for instillation every four (4) hours.

The trichloroacetic acid daily treatment may be alternated with tincture of iodine, or better than the latter is Gifford's mixture which consists of 5 drops each of tincture of iodine and glycerin and 10 grains of iodine crystals. This makes a syrupy solution which is easier to apply than the tincture of iodine.

The above method of treatment will suffice in case of simple ulcer. Where the ulcer is progressive, i.e., the ulcer has a progressive infiltrated border or hypopyon and the pain and congestion is worse and the pupil refuses to dilate sufficiently, we are dealing with a pneumococcus or serpent ulcer, for which the ordinary treatment is insufficient. We must not procrastinate, but must summon surgery to our aid immediately. A keratotomy must be made re-

sulting in the production of a hypotony. "The principles underlying keratotomy in severe ulcers are, the affected cornea is at once relieved of pressure exerted upon it by the intraocular fluids, the lymph flow kept at a very low rate by the normal tension upon the cornea is at once accelerated in the direction of the corneal incision, bringing in a fresh supply of the antibodies, leucocytes and nutrition. It is well known that when an ulcer perforates spontaneously in gonorrheal ophthalmia, it begins at once to heal especially if there is a leakage of the aqueous for a few days." (Gifford.)

A "delimiting keratotomy" (Gifford) can be done readily with good local anesthesia, illumination and fixation. It consists of a corneal incision made in the healthy cornea with a very narrow Graefe cataract knife which is held parallel to the surface of the cornea, so as not to injure the lens and cut through the entire thickness, being held tangential to the ulcer and as close as possible to its center edge. The anterior chamber must be opened daily for 3 to 5 days or longer or until the ulcer shows definite signs of regression. To reopen and empty the anterior chamber of its aqueous, one edge of the corneal incision is depressed with an iris spatula until the chamber empties itself.

In 1933, at Cook County Hospital, 37 corneal ulcers were hospitalized, of which 26 or 70%, had some operative procedure performed and of these 21 or 80% had a delimiting keratotomy done; of the latter 19 had the anterior chamber re-opened and the aqueous drained from 1 to 10 times or an average of 4.9 times.

There is no successful specific treatment of ulcers of the cornea. In 1896 and 1897 Uthoff and Axenfeld discovered that serpent ulcer of the cornea with hypopyon is nearly always due to the pneumococcus. The pneumococcus is also found in chronic lacrimal sac suppurations. In rare cases, the diplobacillus of Morax-Axenfeld and the streptococcus may also cause serpent ulcer. In 10% to 20% of the cases of serpent ulcer, mixed infection will occur, according to Wessely, the pneumococcus with the diplobacilli or streptococci. There are four main types of pneumococci and numerous strains in each group. The pneumococcus, type 1 or streptococcus hemolyticus cause serious corneal ulcer-

ation, but it is usually either the type 3, also one of the most virulent and most frequent causes of pneumococcic ulcer of the cornea and chronic suppurative dacryocystitis and type 4.* This explains why serum therapy of pneumococcus infections fails because there are only therapeutic serums for types 1 and 2. Roemer over 30 years ago, recommended pneumococcic serum for pneumococcic ulcer of the cornea but it had no specific effect, but only that of non-specific foreign protein therapy. Realizing that specific therapy as yet has been unsuccessful in corneal ulcers, researches have been directed toward the field of chemical antiseptics to obtain a chemical strong enough to kill the pneumococci in the tissues and yet not destroy the tissues, but this ideal as yet has not been attained. Morgenroth and Levy found that the pneumococci are very sensitive to ethylhydrocuprein HCL in the experimental laboratory, but it does not have the same effect on human corneal ulcers. However, it should be tried in all cases of pneumococcic ulcer of the cornea, as an instillation of 1% solution of optochin or ethylhydrocuprein HCL, used fresh every two hours night and day, preferably in combination with a 1:5,000 solution of oxycyanide of mercury. Topical application can be made to the ulcer in strength varying from 2 or 5% or the pure powder and 2% ointment for a more continuous effect.

The relatively better prognosis of diplobacillus ulcer when properly treated by zinc therapy should be better appreciated. Axenfeld claims that he never saw a serpent ulcer which was due to the diplobacillus that would not respond to zinc sulphate. For topical application we use a 30% solution applied daily and a 0.25% to a 2% solution as an instillation. In a sense, then, zinc sulphate can be considered as a chemical specific for Morax-Axenfeld diplobacillus infections.

According to Duke-Elder, the therapeutic effect of the ultra-violet light is that it kills microorganisms in the superficial layers of the cornea after which they are exfoliated and a vesicular reaction takes place at the limbus with emigration into the corneal tissue and finally produces regeneration of the epithelium. He states the ultra-violet light is indicated in the severer ulcers, as hypopyon ulcer in which better results are obtained than by cauterization. He warns that the serious effect of the ultra-violet

*Recently the number of types of pneumococci have been increased to eight.

light on the lens makes it essential that the lens must be excluded from the path of the incident rays.

Nugent states that healing of corneal ulcers can be effected by ultra-violet radiation, without the necessity of curettement or cautery of the ulcer and that it produces more rapid sterilization of the cornea than any other means he has tried. Peter, also, commends the use of the ultra-violet treatment of corneal ulcers for the same reasons but adds, that there are cases in which only the actual cautery will arrest the process.

The following general measures may be used to build up resistance and stimulate the reparative processes in the ulcer. Foreign protein therapy, anti-luetic treatment where indicated, liver extract, iron, arsenic and copper in anemia and cod liver oil, viosterol and calcium in phlyctenulosis. The elimination of chronic foci of infection, as, lacrimal sac, tonsils, teeth, nasal sinuses, prostate, seminal vesicles, Fallopian tubes and so forth.

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DISCUSSION

Dr. Walter Stevenson, Quincy: Dr. Yerger has given a complete and concise resume of this very important disease and his statistics are interesting and valuable. I do not know of any eye disease that so taxes the resources of the oculist, and yet at times seems so utterly out of control, and so often goes on to disastrous end results. Until a few years ago I saw a great number of serpigenuous ulcers, most of which came from nearby coal mining regions following slight injuries in the mines. I do not know why injuries of that type are so prone to develop serpigenuous ulcers. Since these coal mines have closed down, I do not see so many of these corneal ulcers. I have not used delimiting keratotomy as described by Gifford and used by the essayist, but can testify to the value of Saemisch sections, although the end results are disappointing in most cases. Paracentesis through the base of the ulcer when it is not centrally located has sometimes been effective. Occasionally I have made a marginal incision at 6 o'clock which evacuates the hypopyon. This should be followed by the instillation of eserine and daily spreading of the incision with a spatula.

A number of years ago, Prince of this city reported excellent results with the use of a copper ball heated by a flame and held as close as possible to the ulcer, the procedure being repeated several times each day. This gave the suggestion that if one could devise a means of producing radiant heat of definite temperature the results might better. V. Mueller of Chicago constructed for me a platinum electrode fitted into a small parabolic reflector which can be attached to the ordinary eye speculum. Without anesthetic the speculum is placed and the electrode heated, the application lasting for varying lengths of time depending on the condition of the ulcer. Boric acid solution is dropped onto the cornea during the application in order to prevent drying and destruction of normal corneal tissue. The instrument has been very useful in my hands, and I shall pass it around for your inspection. A number of years ago Dr. Meyer Wiener reported good results following the use of powdered methylene blue dusted on the ulcer. I believe it has merit. The use of foreign protein I believe useful. Theoretically, pneumococcus antiserum should be specific, and if the organism types No. 1 or No. 2 I see no reason why the serum should not be used. Optochin has proved disappointing to me. If the experience of Nugent can be duplicated the use of ultraviolet applications offers a most encouraging outlook.

I wish to emphasize the importance of prophylaxis in this disease. The careful removal of foreign bodies and necrotic cornea, aseptically, followed by proper antiseptic treatment, and more important than these, the protection of the eye by the closed lid, which can of course only be secured by a properly fitting eye patch, are measures which no competent oculist should neglect. Almost all foreign body cases should be seen a second time, and as often thereafter as may be necessary to ascertain that the corneal wound is well epitheliated, that is, that it does not stain with fluorescein. An irrelevant remark in this discussion includes the precaution of an accurate record of visual acuity in every foreign body case before dismissal.

Thank you for the opportunity of discussing this very important paper.

Dr. H. E. Middleton, Alton: In the treatment of infective ulcer, methylene blue powder dropped in and massaged in, in my hands has outweighed any other form of treatment. A thermaphore heated to 137 degrees held on the ulcer for 55 or 60 seconds is also good therapy. In regard to foreign protein I use typhoid paratyphoid vaccine intravenously, but I start out with 150 millions of dead typhoid paratyphoid bacilli. This dosage was arrived at accidentally. A nurse gave 50 million when 5 million was ordered. I have given initial doses of 200 million. It makes the patient sick, but the effect on the ulcer has been remarkable. I have found this latter treatment effective in hyperplastic iritis, cyclitis and beginning panophthalmitis.

A dendritic ulcer in my opinion points to teeth. I had a case in which a negative x-ray came back, and the thing spread until it became central, always remaining superficial but destroying vision. I had another dental checkup, and we found pathology along the peri-

dental membrane, and upon removal the ulcer healed. Another case had a negative physical examination, beautiful teeth, no pathology that we could find. However, she had had one tooth extracted, and we found a granuloma on the little bit of root that was left, and the ulcer promptly healed upon its removal.

Dr. Charles C. Clement, Chicago: I think most of us are inclined to continue conservative treatment beyond the point that is conservative. If we are going to make an opening in the cornea and reduce tension, the time to do so is when there is some cornea to save. If after a few days, we find the ulcer is not under control, I think we should open the cornea by any method we prefer, then the tension is reduced and the ulcer is more apt to get well. My own preference is for the electric cautery. This seems safer in my hands than the knife.

Dr. C. F. Yerger, Chicago (closing): I wish to thank those who have so kindly discussed my paper. I have nothing to add except that I am a little disappointed in not bringing out more general discussion. I think you all have had a lot of experience in the treatment of corneal ulcers, and that more of you than have done so could continue this discussion, I think the subject is important and that this could be discussed once a year before this Section with profit to all.

BODY TEMPERATURE IN EPILEPTICS

I. RADEFF, M. D.

DIXON, ILL.

In the Dixon State Hospital a large number of epileptics have been admitted in the last ten years. Immediately after their admission they are placed in bed in the hospital building for observation, where temperature, pulse and respiration are charted two times a day. Observing for a long time, I found these patients run very irregular temperatures, so much that it almost enables me to diagnose whether the patient is feeble-minded or epileptic from observing his chart. Looking through the limited literature I was not able to find any description of this condition.

Clifford, Allbutt, Bodswell and Chapman state that the body temperature in normal individuals varies 0.5 degree during the twenty-four hours. According to Howell, it varies one degree, being the lowest body temperature at six to seven a. m. It rises slowly during the day to reach the maximum at five to seven p. m. and falls again during the night.

I picked ninety female epileptics at random but of sufficient intelligence for co-operation.

Practically all of them showed intellectual deterioration, they all have grand mal attacks, some grand mal and petit mal. The number of convulsions varied from one or two in two or three months to four or five a day. The physical examination did not reveal any gross pathological condition. They ate the same kind of food, performed almost the same exercises. Their ages were between seventeen and thirty years and received 1.5 to 3 gr. phenobarbital a day. Their temperatures were taken at 9 a. m. and 4 p. m. by mouth daily for two weeks continu-

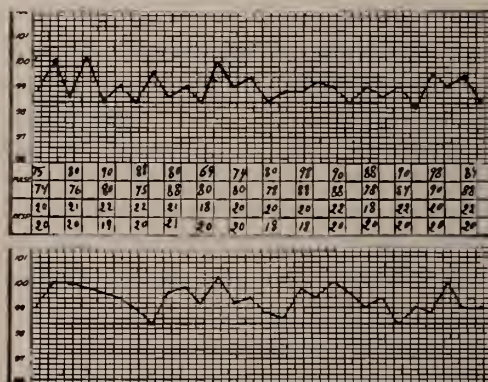


Fig. 1 (above) shows average epileptic's temperature with no convulsions during this period. White cell count 16,000.

Fig. 2 (below) shows similar variation of temperature as Fig. 1. This patient had one convulsion the first day, one the third day, four on the fourth day and one on the fifth day. No convulsions after white cell count 7,000.

ously by a nurse, assisted by an attendant. Several thermometers were used and they were kept in the mouth two minutes, all the readings being charted by the nurse. It was found that not a one of these cases had a normal temperature constantly. The variation of the latter was very irregular, sometimes there was elevation in the morning, sometimes in the afternoon, or maybe a constant elevation for a few days, then a drop or sudden rise and then a gradual drop extending over two or three days until normal, then again rise. Also the rise of temperature was irrespective to the number of convulsions. To cite one case for instance, there was elevation during the day, she had two convulsions; the next day temperature dropped to normal and the patient had two more convulsions without subsequent rise.

During the fourteen day period when the temperature was taken, forty-four patients did not have any convulsions but the temperature was irregular just the same. Sixteen had only one convulsion, twelve had two convulsions, seven, had three, four had four, one had six, two had seven, three had nine and one had thirteen convulsions. The fact is that the case that had thirteen convulsions did not show so much fluctuation of temperature as the other cases.

The highest temperature recorded by month was 101.6, the lowest 97 F. The tendency to subnormal temperature was not very frequent, it was mostly to above normal.

The pulse rate was out of proportion with the temperature, usually being between seventy-five and eighty.

The respiration varied between eighteen and twenty-four a minute, also asynchronous with the temperature but in close relation with the pulse.

The white cell count of the blood was taken once only and showed a variation between 6,000 and 20,000, forty-two patients having normal white cell count. Thirty-three had between 11,000 to 16,000; fifteen had between 15,000 to 20,000.

It is a well established fact that epileptics when in status epilepticus develop high temperatures. I had opportunity to observe some cases with 107 to 109 F. temperature. Also very small number of them have one to two degrees elevation before, during, or after a convulsion necessitating them to go to bed.

Whether this irregularity of temperature is due to a central origin, in support of which theory we may mention mental deterioration, or due to constipation (autotoxemia), to which almost all of these patients are subject, I do not know and it is not my intention to discuss this subject here, but I wish to emphasize the fact that such conditions exist and it could be added to the symptoms of epilepsy.

Of course, this applies to institutional cases of epilepsy. I had no opportunity to study non-deteriorated intellectually cases as we see outside of the institution.

State Colony.

FACIAL TULAREMIA

Diagnostic Difficulties of This Unusually Located Primary Lesion

FREDERICK STEIGMANN, M. D.

Assistant in Medicine—School of Medicine
University of Illinois.

CHICAGO

Before 1924, Tularemia was but seldom recognized, for up until that time only approximately 15 cases had been reported from a few regions. It is known at present, however, that



Fig. 1. Primary tularemic lesion below left mandibular ramus with marked submental adenopathy.

the disease is widely distributed all over the United States as well as Europe and Asia, and that the number of reported cases has reached well above the thousand mark. Since the recognition of its prevalence there have been encountered from time to time, cases of tularemia with symptoms and signs that varied from the classical descriptions to such a degree that a diagnosis was difficult or even impossible on a clinical basis alone. The cases in which such difficulties are encountered can be divided into two groups.

The first group represents cases of tularemia in which the primary lesion is in the typical lo-

cation, but in which either the secondary constitutional symptoms or the secondary toxic, dermatologic manifestations predominate to such an extent as to completely obscure the true nature of the underlying disease. Thus, cases of tularemia have been recorded which clinically simulated typhoid fever¹, malaria², subacute bacterial endocarditis,³ tuberculosis,⁴ influenza,⁵ septic infections⁶, and cholangitis⁷. In other cases the primary lesion was overshadowed by the secondary manifestations of pleural effusion⁸, lung abscess⁹, retropharyngeal abscess¹⁰, pericarditis with effusion¹¹, and jaundice with cholecystitic symptoms¹². In still other cases skin affections resembling sporotrichosis¹³, erythema multiforme¹⁴, pustular dermatitis¹⁵, herpes¹⁶, acne¹⁷, and syphilid like eruption¹⁸ have been reported as masking the original tularemic infection.

The second group comprises cases of tularemia in which the primary lesion is in such an atypical site so as to prove another source of error and lead to an incorrect diagnosis. Usually the location of the primary lesion is on the fingers in about 80 per cent. of the cases.¹⁹ At times, however, if entirely not demonstrable as in the glandular type, the primary lesion may be situated so atypically that everything but tularemia is considered during the first examination. This is especially likely to occur when the patient gives no history of handling rabbits or when the patient's occupation does not provoke inquiry in this direction. Cases of tularemia have been reported in which the primary lesion was found in the following unusual sites; on the perineum, associated with multiple ulcers on the glans penis²⁰; on the buttocks²¹; on the right side of the abdomen²²; on the left lower abdomen²³; on the thigh²⁴; on the leg²⁵; on the knee²⁶; in the temporal region²⁷; in the posterior part of the neck²⁸; and on the gums around the lower teeth²⁹. The occurrence of a primary lesion of tularemia just beneath the left mandibular ramus, such as observed in this case herein reported, has not been, as far as could be ascertained, previously described.

REPORT OF CASE

History: Y. B., a student, aged eighteen years, living in Chicago, presented himself at my office on December 18, 1933, complaining of "loss of pep," fever, sore throat for the past two weeks and a swelling under the

chin and above the left clavicle of eight days duration. The patient thought that he had the "grippe" which would pass away shortly. However, because of the persistence of the general symptoms and especially because of the appearance of the swellings, he was urged by his family to consult a physician. Incidentally, he mentioned that for the past several days he has had, just below his left jaw a painful "pimple" which he would like to have examined since it was more painful and more persistent than any of the pimples he ever had.

His past history as well as that of his family was essentially negative. His personal habits were good. There was no history of any undue stress or strain or recent exposure to patients with influenza. He had had a mild acne vulgaris and comedones for years.

Physical Examination. The patient was a well developed and nourished young white male. The temperature was 101° F, the pulse 84, and the respirations 20 per minute. The blood pressure was 124 systolic and 80 diastolic. The results of the general physical examination were essentially negative except for the acne and the painful pustule below the left jaw and the left-sided adenopathy on the neck. The urine was negative. The white blood cells numbered 12,000 of which 60 per cent. were polymorphonuclear leucocytes, 38 per cent. lymphocytes and 2 per cent. monocytes. The red blood cells numbered 5,000,000 and the hemoglobin was 75 per cent. (Sahli).

Skin. Aside from the acneform eruption on the face, forehead, and upper part of the back, the patient presented on the lower border of the middle of the left jaw a pustule which was about 3.5 mm. in diameter. (See Fig 1.) It was tender to touch, painful and surrounded by a slightly elevated, reddened area of about 2 cm. in diameter. No definite red streaks were seen, but the tenderness seemed to radiate toward the enlarged glands. The latter were quite firm and the overlying skin did not show any changes except for the inferior deep cervical node which was softer and the overlying skin mildly reddened.

Course. As a result of the negative general findings the described skin lesion with the associated adenopathy was considered the cause of the patient's symptoms. Since the patient had a habit of "squeezing his pimples," a secondary infection of one of them with a resulting lymphangitis and lymphadenitis of the lesion draining glands was thought of. Therefore, a high caloric bland diet, with plenty of fluids, sedatives, and hot dressings to the lesion were ordered and the patient was advised to remain in bed.

On December 29, 1933, when next seen his temperature was normal, but he still felt below par. The pustular skin lesion was now replaced by a fairly deep "punched-out like" ulcer about 5 mm. in diameter. The base of the ulcer was reddish and fairly clean and the discharge was seropurulent. The borders of the ulcer were distinctly elevated, moderately indurated, dusky red and mildly tender. The regional glands were more enlarged, but not changed otherwise. The ulcer's appearance and the unilateral adenopathy strongly suggested a luetic infection, but the patient emphatically denied any possible direct or indirect exposure to

syphilitic individuals. In spite of the denial, blood was drawn for serology. The ulcer was dressed with a 5 per cent. ammoniated mercury ointment.

When the Wassermann report returned negative, the patient was seen by a consultant who also considered the lesion as "very likely a primary syphilitic lesion" in spite of the negative Wassermann report and advised repetition of the serology and a dark field examination. Tuberculosis adenitis and the possibility of actinomycosis was also considered, the latter especially because of the cervical nodes, but no etiological factors could be ascertained.

The second Wassermann report was also negative. Another dermatologist was consulted and at this time tularemia was mentioned in the differential diagnosis of the ulcer and the associated adenopathy. Upon questioning, the patient now related that he worked on Saturdays in a grocery store where rabbits were also sold during the holiday season and that he used to dress rabbits. The latter were usually brought from Wisconsin, but he did not know what kind they were. A specimen of blood was drawn and sent to the Illinois State Health Department, Chicago Branch, for an agglutination test with *B. tularensis*. The report returned positive in a dilution of 1:640, establishing thus the diagnosis of tularemia.

When next seen, the gland nearest to the ulcer was found softened, and on pressure to discharge a brownish yellow, thick pus through the opening of the now almost completely healed ulcer. The discharge persisted for about two days and then ceased. There was a gradual decrease in the size of the inferior cervical node, but the submental, submaxillary and anterior cervical nodes remained large and firm and were very annoying to the patient.

Treatment. An antiserum for the treatment of tularemia as described by Foshay,³⁰ was kindly supplied to me by Dr. Foshay. As suggested by Foshay,³⁰ the patient was first tested for any sensitivity to the serum. Because of a mild reaction after the skin test, the serum was given intramuscularly instead of intravenously, on successive days (Feb. 6 and 7), 15 c.c. each time. February 10, an intradermal test with tularensis skin test suspension was as yet mildly positive. February 12, the patient developed a severe serum sickness manifested by giant urticaria, gastro-intestinal disturbances, anuria (for 20 hours), and arthralgia. The serum sickness abated on February 17 and the patient continued to improve since, with the glands constantly decreasing in size.

A second agglutination test on March 15 was reported positive for *B. tularensis* in a dilution of 1:320. The glands were markedly diminished in size, at that time, and the intradermal test gave only a very faint reaction. When last seen, May 15, the patient felt well and the only remnant of the tularemic infection was a small reddish scar at the site of the ulcer.

COMMENT

In 1927, Netherton³¹ wrote: "Tularemia presents such a distinct clinical picture that only a lack of knowledge of the disease or fail-

ure to bear in mind the possibility of its occurrence can be responsible for the erroneous diagnosis of typhoid fever, septic infection, glanders, anthrax, sporotrichosis, actinomycosis, felon of the bone, and primary syphilis, each of which has some symptom or symptoms identical with those of this disease." The veracity of the above statement is undeniable. Nevertheless, it seems, first, that not enough physicians are acquainted with it, and secondly, that some cases of tularemia present such atypical features that their publication is deemed warranted. Hence, this case too, is presented both with consideration of its diagnostic difficulties and interesting features. The latter comprise the atypical location of the primary lesion; the probable pathogenesis; the striking resemblance to a primary syphilitic lesion; and the therapeutic result of the anti-tularensis serum.

Since actual injury during the handling of infected rabbits or other proven carriers of the *B. tularensis* usually determines the location of the primary lesion, the latter is most commonly found on the hands or fingers, the next common site being the conjunctiva. The unusual locations about the head, legs, abdomen, perineum, and gums as stated above were all due to the bites of the tick or deer-fly—with the possible exception of Belote's²² and Kirkwood's⁵ cases. Perusal of the literature makes me believe that the case reported here is probably the only one with a primary lesion on the jaw which has not been caused by the bite of a tick or deerfly. Foshay,* too, thinks that this is the first case of a primary "facial" tularemia east of the Mississippi.

The next unusual point in this case is the pathogenesis. It is easily understood how injury to the hand or fingers with the infected material—i. e., a piece of rabbit bone, a sliver from rabbit crates, or the intimate contact of the infectious material with an abrasion or open wound, or the bite of a tick or deerfly infected with *B. tularensis* will lead to a tularemic infection and development of a primary lesion. It is, however, less evident how a primary lesion, if not due to a tick or deer-fly bite, will develop on the face, unless one assumes that the contagion is deposited there with the fingers that came in contact with the infective material. It is presumed that in this case, the patient with

his hands contaminated from dressing rabbits, either squeezed or scratched a "pimple" on his jaw, thus determining the site of the primary lesion. Only one other case where a similar pathogenesis can be considered is the one reported by Kirkwood,⁵ where the primary lesion was on the gums and which he believed "either due to contamination with the fingers or from eating insufficiently cooked rabbit meat."

The primary lesion of tularemia is usually described as a painful, red papule, the center of which becomes necrotic and is liberated, leaving a small, sharply circumscribed "punched-out" ulcer, with an elevated reddish periphery and a grayish-red, necrotic base. In this case, however, the primary sore, when first seen, appeared as an elevated painful pustule, and the resulting ulcer, although "punched-out" was not deep, had a fairly clean red base, and the discharge was of a more serous than purulent character. The lesion looked so much like a "hard chancre" that in face of a negative Wassermann report, a consulting dermatologist advised a repetition of the serology and a dark field examination. Then too, the regional glandular masses with the exception of one gland nearest to the ulcer were firm and painless.

The result of the therapy with the anti-tularensis serum is worth while mentioning. Although the serum was given about eight weeks after the infection, it seemed to have been of definite value as evidenced by the disappearance of the swollen glands and the faint reaction after the second intradermal test.

SUMMARY

1. A case of tularemia with the primary lesion on the left jaw is reported and the diagnostic difficulties encountered are enumerated.

2. The presumption is made that the B. tularensis may be carried by the contaminated fingers to any part of the body, so that a primary lesion may occur at the most unusual sites.

3. In the case of any chronic ulcer with an associated regional adenopathy tularemia should be ruled out at the first examination by history and agglutination test.

4. In the tick and deer-fly free regions of the United States the wearing of gloves while handling rabbits is the best and only prophylactic measure against tularemic infection and this

fact should be impressed upon the general public.

I am indebted to Drs. Harry A. Singer and Max S. Wien for their suggestions and information.

4258 W. Harrison Street.

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SYSTEMIC INFECTION FROM THE COLON

CHARLES J. DRUECK, M. D.
CHICAGO

Functionally the colon may be divided into the absorptive portion, consisting of the cecum, ascending and transverse sections, and the expulsive portion, including the descending colon, sigmoid and rectum. Both portions vary from three to five feet in length. The smallest lumen is in the sigmoid and the widest in the ascending colon, and, separating the cecum from the small intestine is the ileocecal valve, the only one-way valve in the gastrointestinal tract. Thus the enteric canal is so constructed, both anatomically and physiologically, as to furnish adequate culture media for the growth of certain bacteria, but that does not prove that the rather hypothetical toxins liberated by intestinal bacteria are responsible for the feelings of ill-health so frequently associated with intestinal stasis. Finding a preponderance of a certain organism, or an organism not usually present in the stool does not certify that it is the cause of systemic disease. Vaccines prepared from organisms recovered from the stool are being used, but a positive skin test simply means that the individual is sensitized to that specific organism. It does not necessarily follow that the bacteria are responsible for symptoms. Probably all of us are sensitive to one or more strains of our intestinal bacteria.

The cecum is the region in which absorption can readily occur, and intestinal bacteria, or their toxins, probably invade the tissues at this point. The dryness of the feces in the transverse and descending colon is one of the features which prevents absorption of toxins and the passage of bacteria—unless, because of some abnormality, the feces remain in the liquid state.

The right colon drains into the portal circulation, which point is important when diseases of the liver and gall bladder are considered. In part, also the colon empties into the hemorrhoidal veins, thence to the iliac veins by which toxins may be delivered anywhere in the body where tissue resistance is lowered. The *B. coli*,

B. typhosis, *B. Welchii* and the *Streptococcus fecalis* are so frequently recovered from gall stones, the gall bladder wall, the articulations and genitourinary tract, that it is impossible to doubt the intestinal origin of these pathologic conditions.

Natural tissue drainage is a very important factor in the determination of chronic infection. If drainage from an infected area is free and unimpaired the infection will automatically clear up unless fed by some other focus behind it. Thus a pyelitis may disappear following correction of a colon infection, but it cannot occur in the presence of ureteral spasm or stricture. Frequently free drainage is interfered with by allergic reactions in and about the tissues. In such cases desensitization must accompany any active therapy designed to improve drainage.

The propulsive action of the colon depends on the longitudinal taenia coli, which have the ability to relax as well as to contract. They act as elevators and lift the cecum up the right side, in some cases as much as three inches¹ working somewhat like an accordion. This contraction of the taeniocoli produces the haustrations seen on an x-ray film.

These contractions form the mass movement by which the cecum and ascending colon empty their content over to the left side where formation and expulsion of the stool occur. The final mass movement in expelling the fecal content occurs with the invagination of the sigmoid into the rectum and a second immediate invagination to expel any remaining feces.²

It is well recognized that a large number of acute conditions and many chronic ones, are the result of infections, but the process does not stop here. The bacteria lodge in the surrounding tissues and irritate them with toxins, the effect depending on the virulence of the organism and the type of tissue invaded and the class of tissue for which the organism has a specific predilection, as the colon and more especially the pelvic bowel though composed of several tissues has but one, the mucosa, especially prepared to resist infection. There are times when all resistance seems to be lost and the host is overwhelmed by the organism.

It is the function of many tissues to reproduce themselves, the stimulus to do so being the demand put upon them or the presence of some irritant. In most cases damages are re-

paired except in highly specialized cells, in which case there is an inherent superabundance to allow for wastage. In the case of a lymphatic gland a local irritant may bring on an enormous reproduction of the cells such as is seen in Hodgkin's disease, and in infections which overwhelm the resistance of the host, a picture resembling Hodgkin's disease is produced. Pern³ suggests "the future may show that in malignancy the individual has lost all resistance to some particular organism that has been irritating him for a long period of time." The uterine muscle, which has such great powers of overgrowth in pregnancy, is also seen to do so under some abnormal stimulus, causing myomata. This daily invasion of nonvirulent streptococci could bring about this condition.

In most of the colon and rectal inflammations, benign or malignant, there is found a co-existing infection of the digestive tract higher up and the presence of tooth and tonsil disease is remarkably frequent. This low-grade infection, chronic in character, may be a progenitor of malignancy, therefore the greatest safeguard we can offer our patient is the eradication of all chronic infections.

Children contract streptococic infections soon after birth, the organism finding lodgement in the lymphoid tissue of the pharynx, from there it spreads to the nasal mucosa and sinuses, and it is not long before dental caries sets in and later on in life, pyorrhea. The transmutability of the streptococcus through its various types even to the pneumococcus has been well established and it would be foolish of us not to think it had varying periods of virulence and innocence during its sojourns in the individual during his lifetime. Many people go through life more or less well in spite of it, but all are better without it. The recognizable diseases it produces are really only a small part of its depredations. It interferes with growth of body and mind. It is the cause of neurasthenia and hysteria, that great mass of undiagnosed humanity. It overstimulates the thyroid causing hyperactivity of the sympathetic nervous system. It also causes damage to the endocrine glands, producing melancholia.

One of the great features of this chronic infection is an enormous drain upon the calcium supplies of the body. This is shown in many ways. Rickets, which is accepted as due to lack

of the proper calcium mobilizing vitamins in the presence of greatly diminished calcium supplies, will necessarily be far more prevalent than it would be with an abundance of calcium. This depletion naturally makes for frailty of the bony structure. We know that calcium is essential for the repair of tissues and is in great demand in this chronic infection. There is one side of this calcium depletion which seems to have escaped the notice of many and that is its relation to the makeup of the individual. The synapses in the cord, which are buffers to impulses passing centripetally, owe their resistance largely to the various salts in the blood, and of these calcium plays a very important part. If it is in reduced quantities the normal inhibition is impaired, allowing for exaggerated responses. This is why such persons jump when a door is slammed, and why sick people are invariably so irritable. In such conditions it is difficult to exercise that mental inhibition which should be the aim of all.

Infection of the deeper layers of the mucosa of the colon and rectum constantly recurs while a stream of organisms come from the throat or bronchial tract and it is obvious that our first efforts must be directed toward stopping this stream of organisms and then see if the local tissues still have enough resistance to destroy those organisms which have already been localized. Many such cases clear up permanently after this has been done and diathermy applied through the part to improve its nutrition.

Infection with a hemolytic streptococcus or a streptococcus viridans is always a serious problem, because it does not cure spontaneously and adequate treatment must be applied to eradicate the infection. If there is any doubt as to the presence of infection, resort must be made to the culture tube because mere inspection is unsatisfactory.

In many instances where less severe rectal disturbances are noticed self-treatment is instituted, although when definite local symptoms develop, a physician is consulted. Unfortunately even in the hands of a medical man many of these symptoms are spoken of as biliousness, indigestion, dyspepsia, rheumatism, neuritis, arthritis, autointoxication or reflex pains and then these symptoms are treated empirically with sedatives, analgesics, massage, various types of heliotherapy, electrotherapy and other modifications

of physical therapy. These cases of so-called muscular rheumatism, sciatica, lumbago, various neuralgias, and asthma are merely manifestations of infection located in organs more or less remote from the point at which these symptoms are evidenced, and it is these incomplete or mistaken diagnoses by which internal organs are innocently accused of being the general causal factors and unnecessary medication or unprofitable surgical operations are directed toward these organs. Since we have learned that many symptoms, general in character, are due to infections originating in parts of the body lined with mucous membrane and usually remote from the regions in which the symptoms are manifested, many of these tissues, organs and cavities have been examined and in many instances, definite foci have been discovered from which these infections originated.

The teeth, tonsils, the various sinuses, bronchial mucosa, kidney, uterus and adnexa, prostate, gall bladder, appendix, colon, and finally the rectum may each and all, singly or in combination, contain definite primary or metastatic infective processes the absorption of whose products may be responsible for many symptoms heretofore treated by experiment. The symptoms of disturbed intestinal function, such as indigestion and autointoxication have been too long treated by the administration of cathartics and enemas and the modification of the patient's diet, or the presence of pain in the rectum together with bleeding or other discharge from the anus been dismissed with a prescription for salves or suppositories. All of these procedures fail completely or afford but transitory amelioration. Neuralgia, rheumatoid pains, dizziness, nausea, headache, blurring of the eyes, fatigue syndrome, constipation, halitosis, loss of appetite, abdominal distress, recurrent herpes, unexplained rises of fever, pruritus, eczema and disturbed sleep are frequently due to focal infection.

Though the individual may successfully combat the effects of the focal infection its continued toxins lower his resistance and when some second infection invades it may terminate fatally. Thus spondylitis, osteomyelitis, pyonephritis and pulmonary abscess may develop from colon or rectal disease which has been overlooked as possible foci of infection.

Autointoxication is quite generally recognized

as evidence of a disordered intestinal canal, and under proper therapy many cases respond to treatment. However, it is not universally appreciated that the sigmoid, rectum and anus are fertile sources of focal infection.

While many sufferers recover promptly, almost miraculously, after the removal of a septic pocket, the clinician sometimes notes with disappointment that following the removal of a focus or foci of infection, the results show little or no improvement in the health of the patient. Occasionally his disability has been increased, or new and more severe symptoms, the direct result of the operation have developed, for example, lung abscess. One naturally asks himself: Why should so many patients fail to respond more favorably to this rational form of therapy? It would appear that the chief reasons for lack of improvement in these patients are: 1. an inadequate appreciation of the causal relationship of focal infections to various chronic conditions; 2. an incomplete diagnosis, and, therefore, an incomplete plan of treatment for the individual patient; 3. a lack of proper co-operation in both diagnosis and treatment between the physician in charge of the patient and the consultant surgeon or dentist who removes the foci; 4. an inadequate follow up of the patient while under treatment.

It is unnecessary to refer to the evidence upon which the principle of focal infection is based, if the frequency with which the removal of foci of infection as recommended by the profession may be taken as proof of the recognition of its importance as a cause of disease. However, the manner in which foci of infection in the terminal bowel may affect the body locally or generally is not so universally appreciated.

Following an injury, bacteria invade the traumatized area where they may or may not produce local symptoms, depending upon the severity of the inflammatory reaction.

If definite local symptoms develop, the patient may consult his physician or may institute self-treatment. The diagnosis is comparatively easy and, providing the focus can be removed or drained properly, the local symptoms are relieved and, if treated early, the damage to distant parts of the body repaired or prevented from developing. Unfortunately, local symptoms are often absent; the bacteria continue to multiply, pro-

ducing toxins which are absorbed, causing systemic disease by intoxication.

In a restricted meaning focal infection implies the production of a toxin in the infected foci, which toxin is carried by the blood and the lymph to the region made morbid by it, or to the nerve centers controlling these tissues and, by its effect on these nerve centers, causes morbid condition through the action of these nerves, and are separate and apart from the tissues made morbid by such infections.

In other instances the primary focus is merely a nesting-place from which the bacteria are picked up by the blood or lymph and transplanted to other locations in distant parts of the body where they form secondary or metastatic foci of infection, before the patient consults his physician. Because these secondary infections have a special affinity for diseased tissue, it is more apt to attack the diseased areas. The bacteria found about many diseased areas may be accounted for in this way when they were not present at the onset of the morbidity.

Metastatic foci may be found in any part of the body, but are most commonly present in the joints, the endocardium, gall bladder and kidneys, less often in mucous membranes of the lower respiratory and gastrointestinal tracts, muscle and tendons, eye and ear. Local symptoms are more commonly present and more severe with metastatic foci. The character of the symptoms upon which the diagnosis of metastatic infection depends is determined by the location of the lesion and by the activity of the primary focus responsible for the lesion. The injured part may recover from the first infection with or without the removal of the primary focus, but after repeated reinfection, structural changes occur which result in permanent disturbances of function and, unless the area can be removed by operation, complete amelioration of the local symptoms is impossible.

If these few essential points referring to the development of focal infection from primary and metastatic foci are borne in mind, it will be less difficult to understand the lack of uniformity in the results of treatment following the removal of foci of infections in patients suffering from apparently similar clinical conditions. One can appreciate more fully the importance of a complete diagnosis before recommending a plan of treatment. In the search for foci of

infection as a cause of local disturbances of function or of general ill-health, it is not sufficient to confine one's efforts in diagnosis to their detection within the sigmoid, rectum and anus, but to determine whether such foci as are found are causing the systemic disturbances; that is, are they the primary cause of the disability? Perhaps more commonly the active foci are secondary etiological factors affecting the progress of a diseased condition due to another cause. For example, our patient may have inflamed anal crypts which discharge free pus but the cryptitis is but part of the proctitis higher up. If the focus of infection wherever found is the primary cause of the disability, its removal will prevent the possible future development of systemic disease from the area in the pelvic bowel. If focal infection is the primary cause of ill-health, and all foci of infection have been found and can be eradicated, we may expect that our patient's health will improve, and a cure or a marked amelioration of symptoms will result. If the infection in the rectum is but a contributing cause, the treatment of such foci is necessary but must be considered as supplementary to the recognized treatment of the cause of the primary condition.

For example, Mrs. G. Y., age 35, had a baby ten years ago. The delivery was difficult and there resulted a very deep cervical laceration and also a rent in the perineal body. The immediate repair was not very successful but she did not have anything further done. A short while ago she suffered a heavy, full feeling in the rectum at all times and recently has been much disturbed because of a burning pain at the anus and bleeding after each bowel movement. Examination disclosed a gray fissure at the anus which bled after even careful examination. The sphincters were spastic and tender. The rectal mucosa was engorged. Vaginally, the uterine cervix was very large and covered with granulations. This large eroded mass resembled a carcinoma. The primary infection here was in the cervical ectropion which by pressure on the vaginal septum caused the proctitis as a secondary lesion, the anal fissure being but incidental. To have removed only the fissure and relaxed the sphincters was to obtain only temporary, if any, relief; the cervical lesion was the primary lesion. This differentiation may appear too obvious to mention, but one sees too frequently patients suffering from a mild exacerbation of hemorrhoids or fissure, in whom foci of definite infection exist elsewhere and thus the primary cause of ill-health has been overlooked.

Bacteria: The bacteria usually found in focal infections are the streptococcus and the pneumococcus, and of the less virulent strains of these, but other bacteria may be found. Many

genital disturbances in the female are due to colon bacillus infection. No one strain of bacteria has been found constant in all cases of focal infection, although the streptococcus viridans seems to be more nearly constant than any others. It may be that one kind of bacteria, as the tubercle bacillus, starts the focus of inflammation and some other kind, as the streptococcus viridans, enters the focus secondarily, where it forms the toxins which are transmitted from the focus; or more than one kind of bacteria may be working in the same focus, both producing toxins at the same time.

Toxins: The proteins of the body are made up of eighteen kinds of molecules, known as amino acids, each protein having its own combination of amino acids. Each amino acid contains one or more carboxyl radicals, COOH , or carbon dioxide with hydrogen atom attached. Whenever there is dead tissue in the rectum or anus in the form of a gangrenous hemorrhoid, debris in an anal crypt or exuded serum and fibrin in a diseased mucosa or submucosa, this dead tissue may become infected with bacteria which bacteria separate the carbon dioxide from the hydrogen atom of the carboxyl radical, changing the amino acid into an amine. The amino acid is a necessary unit of food for the body but the amine is not only in most cases, abnormal to the body tissues, but in excess doses, it is usually toxic. Amines vary in their physiological action toward the body and also in their solubility, some being more soluble in water and others being more soluble in oils. Absorption and transmission of these amines in the body may vary with their solubility in the adjacent body fluids. So the kinds of amines absorbed and passed into the body vary, first with the amino acids converted into amines and then with the solubility of the amines in the adjacent body fluids. The amines being absorbed from any focus of infection, pass into the lymph or blood by which they are transmitted and brought into contact with some distant tissue, or the nerves supplying such tissue, which they damage by their toxic effect, producing the morbid condition recognized as disease.

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HEART DISEASE

FRANK J. JIRKA, M. D.,

Director, Illinois Department of Public Health

SPRINGFIELD, ILL.

Heart disease was responsible for approximately one out of each four deaths that occurred last year in Illinois. To cardiac impairment is attributed more than twice the mortality charged against any other cause whatsoever. Mortality ascribed to heart disease last year in this State, was greater than the aggregate mortality attributed to cancer, tuberculosis, pneumonia, diphtheria, scarlet fever, typhoid fever, whooping cough, measles and the complications of childbirth.

Among people under 55 years of age, heart diseases cause substantially more deaths than tuberculosis, and nearly twice the mortality attributed to cancer. Last year in Illinois heart disease was responsible for a greater volume of mortality among people under 30 years of age, than the aggregate attributed to typhoid fever, scarlet fever, diphtheria, whooping cough, measles and poliomyelitis.

It is estimated on apparently substantial grounds that there are living in Illinois no less than 140,000 people with hearts impaired to a degree that gives definite disability ratings to the patients. These patients, according to well informed observers, live an average of about seven years after the cardiac impairment reaches the point that classes the patient with the chronically ill. Thus the 140,000 living victims of heart impairment in Illinois are destined to survive for an aggregate of approximately 1,000,000 years under a restricted handicap that seriously interferes with economic usefulness, as well as with the pursuit of social and cultural activities. Their care, no doubt, will involve the expenditure of a vast amount of time, effort and money.

Mortality from heart disease, moreover, has increased tremendously during the last twenty years. In 1913 there were 7,171 deaths attributed to cardiac disturbance in Illinois, giving a rate of 122 per 100,000 population. In 1933 the number of fatalities was 19,900 and the rate 254. Thus we find that fatal heart impairment now occurs twice as frequently as it did, two short decades ago.

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These rather nebulous figures that approach astronomical magnitude in respect to disability, are a sufficient reason for choosing heart disease as the topic of this paper. No health officer can justifiably ignore or wink at a condition to which one-fourth of the population seems destined to become the fatal victims. The medical profession can ill afford to neglect the study of a problem that involves a volume of chronic illness that ranks in magnitude second only to chronic rheumatism.

A closer inspection of the statistics brings to light some very encouraging features of the otherwise dark picture. There is revealed also the promise of considerable success in future efforts that may be directed at control with a program planned and executed along proper lines. During the last decade in Illinois the death rate from all forms of heart disease among people under twenty years of age has declined by one-half. For this group the death rate in 1922 was 23.9 per 100,000 while in 1932 it was only 11.3.

Some improvement has marked the course of mortality in the twenty to thirty-five age group. For this block of the population the rate fell from 34.2 to 28.8. While not a very pronounced favorable difference the decline appears to be significant.

For all older age groups the rate has advanced from a slight increase among those between 35 and 44 to a very wide margin that trends rapidly upward with the rising age level. Since 1925 the death rate from heart disease among people who ought to be at the very peak of usefulness, those between 45 and 54 years of age, has jumped from 206 to 250 per 100,000, an increase of 21 per cent. in eight years. Thus while a decline in the younger age groups offers encouragement and suggests the possibility of control, the heavy and rapidly increasing losses of those at an age which ought to place them in the very prime of life cries aloud for a more vigorous and effective program.

Another encouraging aspect of the problem is the decline in mortality from endocarditis. Acute forms of endocarditis were charged with a death rate of 7.7 per 100,000 in 1920 and only 3.2 in 1932, a reduction of more than one-half. This type of heart disease is believed to result very largely from bacterial invasion. We know that great improvement has taken place in the

control of many of the communicable diseases during the last decade. The evidence, therefore, indicates that more effective control over the infectious diseases is the avenue of promise in preventing a substantial proportion of cardiac impairment.

Endocarditis is the dominant type of fatal heart disease among younger people. It is responsible for no less than 55 per cent. of all fatal cardiac impairment in people under 35 years of age and for 30 per cent. in the 35 to 44 age group. On the assumption that this type of the disease is preventable, the importance of control measures is magnified by the fact that heart disease causes one-third more deaths than does tuberculosis in the 35 to 44 year age group and ranks second only to tuberculosis as the most fatal disease in those under 35.

TABLE 1. DEATHS FROM HEART DISEASE AND TUBERCULOSIS, CERTAIN AGE GROUPS ILLINOIS, 1932

Age in Years	Heart Disease		Tuberculosis
	All Forms	Endocarditis	
Under 35	882	465	1987
35 to 44	1160	341	872

Numerous studies have been made that show the prevalence of heart disease. One of the most recent was in Massachusetts where a corps of workers took a chronic illness census in a house to house canvass that covered one per cent. of the population. Based upon this sampling it was estimated that in the entire population of that State there are at any one time 84,000 people with chronic heart disease and 2,600 of these are completely disabled. Applying these findings to Illinois it would appear that at any one time we have fully 140,000 people with seriously impaired hearts and that more than 4,000 of that number are totally disabled.

From voluntary reports of noncommunicable diseases rendered by practicing physicians to the State Department of Public Health in New York, De Porte estimates that there are 300,000 cases of heart disease in that State. These are patients who have consulted physicians with respect to their health with the result that cardiac impairment was discovered. Among the noncommunicable diseases reported in New York State, 4 per cent. were ascribed to heart disease. The New York data are in line with those of Massachusetts and other studies.

Among 5,509 grammar grade children enrolled in the schools of 37 different communities throughout down-State Illinois, physicians on

the staff of the State Department of Public Health, who examined these children during the last fiscal year, found 3.2 per cent. with defective hearts. These findings agree almost exactly with those of the United States Public Health Service survey of 17,974 school children in Illinois, Missouri and Florida. In that group 3 per cent. were found with cardiac impairment. These data indicate that there are about 30,000 elementary school children in Illinois with defective hearts.

In a study of the medical records of recruits drafted into the United States Army for World War duty, it was found that 5 per cent. showed evidence of organic heart disease, and that 90 per cent. of those with demonstrable cardiac impairment were rejected as being unfit for military duty. At the same rate we should expect to find among the 2,000,000 people in the twenty to thirty-five age group in this State fully 100,000 with impaired hearts.

Three years ago the Heart Council of Cincinnati made a medical survey of 1,000 white male machine and hand tool operators and the year before the same organization conducted a similar survey of 1,000 adult male office workers. Among the machine and hand tool operators, most of whom were between 25 and 45 years of age, 46 per cent. had detectable heart lesions and 31 per cent. had lesions that were regarded as significant. About one-third of the office workers had detectable heart lesions.

At the University of Illinois, Beard has examined a large percentage of the young men and young women who have matriculated at that institution since 1918. Among this selected group, which probably represents the highest physical and mental health level of the young manhood and womanhood of Illinois, he found heart impairment in from 1.5% to 4% of each class. Of the 1934 class members 2.8% had defective hearts. Beard's studies indicate to him that there is a close relationship between the cardiac lesions and the past histories of the patients with respect to communicable diseases.

"The experience of each year," he says, "emphasizes the relation of communicable diseases to heart defects. These diseases are frequently followed by endocarditis and consequent organic disease of the heart valves. The prevention of cardiac disease is largely a problem of controlling these infections."

Bigelow and Lombard point out as a result of their survey findings in Massachusetts that the chronic morbidity rate among the group having had previous attacks of rheumatic fever is nearly twice as great as among those who had not. These same observers list frequent sore throat, growing pains, frequent colds, malaria, typhoid fever, diphtheria and scarlet fever as predisposing factors to chronic ailments, the most important of which is heart disease. They also found that failure to eat protective foods, such as milk, fruit and green vegetables, as well as the confirmed lack of exercise and the taking of laxatives, loomed large as apparent predisposing causes to the chronic, disabling diseases of middle and later life. Among these chronic ailments, heart impairment ranked first except for chronic rheumatism.

Of no less significance the Massachusetts survey indicated that when parents or grandparents were reported to have died of chronic heart disease, the incidence in families was 50 per cent. higher than when such was not the case. This observation probably does not denote hereditary predisposition to heart disease, from a physiological basis, so much as predisposing family habits and unhygienic practices that are handed down from generation to generation by example.

From the available evidence a few rather definite conclusions may be drawn.

1. Heart disease is a dominant and growing cause of death that cuts short the life span of a significant proportion of the population, long before the natural wearing processes of senility should begin to manifest themselves.

2. Substantial improvement has taken place during the last decade in mortality from heart disease among younger people, the result, apparently, of increasingly effective control over communicable diseases.

3. The incidence of heart impairment is found to be significant among all age groups, rising in prevalence from about 3 per cent. in elementary school children to 5 per cent. among those of military age, and to much higher proportions among people in the higher age groups.

4. A substantial proportion of heart impairment may be prevented by the control of communicable diseases and by the application of available knowledge with respect to diet and personal hygiene.

5. A great deal of physical disability from

cardiac impairment is subject to prevention by the early detection of heart lesions, followed by appropriate treatment and modified habits of life.

What has been accomplished indirectly, suggests the character of future programs against heart disease. Efforts should be concentrated on the younger age groups, particularly children. The first line of attack should be against communicable diseases of all kinds, especially those caused by streptococcus organisms and the spirochetes.

The second step in the offensive should relate to the improvement of child health through better diet, the correction of physical defects and better habits of personal hygiene. The third step in the program should be the detection of heart impairment in its early stages, and the planning of life for individuals accordingly.

This outline is nothing more nor less than an abbreviated outline for a general public health program. The prevention, control and alleviation of heart disease, depends upon the execution of a program that will prevent and control diseases in general and which will tend to raise the general level of individual and public health. I have used heart disease merely to illustrate the need for a more extensive practice of preventive medicine. To a public health officer this need manifests itself on all sides and in a multitude of ways.

By every concept of logic and reason the medical profession should take the leadership in initiating and executing programs of preventive as well as of curative medicine. For this task they are especially prepared by training and experience. They are closely organized, with county societies as the basic unit. This makes possible the development of programs with the county as a population unit.

So far organized medicine has been slow to initiate programs of preventive medicine. The public, however, has become restive in the belief that available medical knowledge ought to be more generally applied for the benefit of society. Evidence of public demand is apparent on all sides. In Massachusetts, a state that from colonial days has blazed the way in public health movements, the State Legislature commanded the Department of Health, against the advice of its director, to initiate a program of cancer control that involved the hospitalization of pa-

tients and the holding of clinics. Funds sufficient for the purposes in view were appropriated and the project is now regarded as a permanent part of state health work.

In New York the State operates pathological laboratories, venereal disease clinics and subsidizes county hospitals that meet specified requirements concerning the care and treatment of patients, the treatment of whom is regarded as of public health significance. The trend toward socialization of medical practice has reached varying levels in the other states.

Evidence of the same trend is witnessed in other developments. The organization of parents and teachers is playing a more and more important part in promoting programs of public health. In cooperation with school boards they raise money for the payment of nurses, for the holding of clinics, for the correction of physical defects and for projects in nutrition.

An association controlled by laymen has promoted the program for the prevention of ophthalmia neonatorum, and has succeeded to the extent of securing effective legislation with respect to compulsory prophylaxis in this and other States.

Health insurance schemes are coming more and more to popular attention, and they appear to be meeting with no little favor. Through the influence of labor unions and large employers of labor, which are able to swing into line big blocks of membership, a health insurance project in Los Angeles County has reached the point where scores of physicians and nurses are employed to handle the medical business. For a fee of \$2 per month per family this organization is able to furnish medical service of no second-rate character to thousands of people and at a profit. This particular agency is controlled by two physicians whose training and qualifications are above reproach. At the moment they are on trial initiated by the County Medical Society on technical charges. Whatever the outcome of that trial, which aims at expelling from organized medicine the two physicians, the result is not likely to defeat for very long the movement they have started.

These developments are offered as straws in the wind. They point toward a strong undercurrent in the social fabric that demands the spreading by some means of medical service, and particularly the practice of preventive medicine.

By recognizing the situation and taking the initiative, organized medicine can direct the course and determine the character of medical practice. The county society is the logical unit through which programs should be initiated. By organized effort the county society could work out practicable methods that would insure the vaccination and immunization against diphtheria of every child in the county. Plans could be executed for the medical examination of every school child at least twice during his elementary school career. Arrangements could be made for the correction of physical defects when discovered. The county medical society could be made the medical and health educational center of the county. Parran of New York and McLaughlin of the United States Public Health Service recommend the development of county hospitals as centers for modern equipment which is needed to give adequate medical service on a strictly individual basis, which now is far beyond the economic reach of a great many people.

These suggestions I offer as worthy of the most earnest consideration. The public has been taught that many contagious diseases can be prevented. They are told in voices shouted from the house tops that heart disease as well as many other chronic ills can be prevented to a substantial degree or greatly curtailed. The notion that the utilization lags far behind the availability of medical knowledge, is constantly urged upon the public. Thus a demand has been created for more general medical service and this demand is apt to grow steadily.

Where the organized medical profession takes the lead in programs of a public or quasi-public nature, the public will turn naturally to them for guidance in all matters medical. Where they fail to take this initiative the public will turn naturally for guidance to those elements who do take the initiative in this field.

DISCUSSION

Dr. Andy Hall, Mt. Vernon: I am much interested in the array of figures just presented by Dr. Jirka. This subject should be of particular interest to physicians. According to the American Medical Association's record of physicians who died in the United States last year, of the 3,209 whose deaths were reported in the *JOURNAL* 1,131 died of heart lesions. In other words, more than one out of three physicians who died in 1933 died from a heart lesion, and it is reasonable to assume that the same type of lesion will cause the death of one out of every three physicians sitting in this room today.

The doctor has called our attention to the fact that the mortality from heart disease in people under 21 years of age has been practically cut in half in recent years. This improvement has been due to our efforts in limiting contagious diseases and the resulting infections that follow that cause heart disease. That is no doubt the reason for the decreased mortality in the age group under 21 years. But he tells us that in the older age groups it is increasing.

We have spent great efforts in educating the public toward the prevention of such diseases as diphtheria, smallpox and typhoid fever. We have urged upon them the necessity for the removal of physical defects, such as bad teeth, tonsils, etc., and the necessity for doing other things that would lessen the incidence and the sequelae that follow such conditions. But there is one great factor upon which he touches only lightly, and that is syphilis. In a recent article published in the *Journal of the American Medical Association*, the statement is made by men who are looked upon as authorities in that line, that of all adults dying from cardiovascular diseases, syphilis is accountable for one-fourth of the deaths. While we have put forth great effort in educating the lay public in the prevention of many diseases, we have done practically nothing concerning the prevention of syphilis. How many physicians in this audience have gone before lay groups for the discussion of syphilis? I see about five individuals responding. Syphilis is one of the three great etiologic groups causing cardiovascular disease. It accounts for one-sixth to one-fourth of deaths, and at the present time it is the only one of the groups in which preventable measures are known and available. Are we doing everything that is reasonably possible to prevent syphilis, or prevent these grave consequences of syphilis? Not only is it responsible for many diseases of the heart that cut short the lives of some of our most valuable citizens, but it is responsible for about 15 per cent. of all blindness. It is responsible for many premature and stillbirths. It is responsible for one out of every seven men and one out of every seventeen women sent to the hospitals for the insane in this state. Syphilis ranks with tuberculosis, pneumonia, and cancer, but unlike these plagues, with the available means at hand for its prevention and cure, there is no reason why it should not be eradicated. It is not eradicated because we have not put forth the efforts we should to suppress this disease. It must be taken care of early in its incipency, during the primary stage. Many of us have hesitated to institute treatment for syphilis until we could get a positive blood Wassermann. That is too late. The most satisfactory results are obtained in the primary stage, by dark field diagnosis which can be made in about 98 per cent. of the cases if the specimens are examined within twenty-four hours. If the specimen is collected and examined within three days, the Department of Public Health has found that they could get positive findings in about 85 per cent. of the cases, and if treatment is begun in the early stages, during the time when we can make a dark field diagnosis, you get an average of about 71 per cent. cures. But if you wait until you get a blood Wassermann the average

cure is only about 53 per cent. and a longer delay means even less. You will not get these cases in the primary stage until we can educate the public on the cause of syphilis, its disastrous results, the ways of prevention and the necessity for seeing a physician early. Every group of high school boys and girls should have a few lectures on venereal diseases. Infection usually occurs between the ages of 17 and 25. If they go untreated many of them develop heart lesions, and that is one of the reasons why the mortality from heart disease in the upper age group is not diminishing.

Every County Society should have at least one program each year on syphilis, and physicians should disseminate the knowledge needful for the public to understand something about syphilis, how it is transmitted, its terrible results, the necessity of seeing a physician early. Physicians should disseminate the knowledge needful for a clear understanding of this disease, and parents, teachers and guardians should open wide the gates of knowledge so that the public may enter. The facts may be revolting, but it is better that our sensibilities should be shocked than that people should be ignorant of facts upon which depends sight, hearing, intelligence, health and the lives of the children of men. Let us do our best to tear aside the thick curtain from behind which people are hiding their eyes from many unpleasant but needful truths.

Dr. N. S. Davis, Chicago: This is a very interesting paper on the subject of heart disease and the prevention of that type encountered in the earlier decades of life. There is one point that I think should be emphasized in connection with heart disease in the latter decades which for the most part is due to arteriosclerosis or to arteriolosclerosis with hypertension. In these cases the involvement of the heart is really secondary to a disease of the blood vessels. Other diseases of the arteries that are associated with cerebral hemorrhage or thrombosis and with chronic nephritis in these age groups are also on the increase. If all of the diseases due to disease of the arteries are grouped together we find that in those over 45 years of age almost 50% of deaths are due directly to vascular disease. This does not include deaths due to the pneumonias or to diabetes in which arterial disease is so often an important contributory cause of death. If progress is to be made in the prevention of these deaths in those over 45 years of age, we must concentrate on the study of diseases of the arteries rather than on the changes in various organs secondary to the changes in the arteries.

Dr. Frank J. Jirka, Springfield (closing): I want to thank Dr. Andy Hall for elaborating on this particular aspect of the problem. He told us something about the deaths attributable to syphilis, and he mentioned something, if I recall, about the care of the pregnant woman. I think an early diagnosis of syphilis in the newborn, or a prenatal diagnosis of syphilis in the mother, should be resorted to a little more frequently than has been done heretofore. Dr. Hall also called attention to the dark field test for syphilis before the Wassermann test is obtainable, and I believe the physicians of our state should avail themselves of the tests we are willing to make. He also said something about

physicians lecturing throughout the state on the subject of syphilis. Recently we engaged the services of a lady representing the Social Hygiene association of New York. There is no reason why we should bring in an outsider to teach our children. We have plenty of brilliant men and women in our own state who could give adequate lectures on sex life in such a way as to translate scientific language into language which is comprehensible to the layman. Crime and insanity is increasing by leaps and bounds; 10 per cent. of insanity is said to be due to syphilis, and there is probably the same percentage at least in crime. If we are going to have a decent life in the future, I think we should discuss sex life and venereal diseases with the children of this day—and this should be done by the medical profession, not by laymen or lay organizations. I received a letter recently from the American Association for Birth Control relative to the use of contraceptives, and they ask the question why do lay organizations have to interest themselves in matters such as this? This is another problem for the medical profession.

Relative to Dr. Davis' suggestions, I think they were valuable suggestions and I thank him for them, but I believe and think that in the very near future we will find that the so-called coronary arteriosclerosis or atherosclerosis of the coronary arteries bears some relationship to diet and to the increasing different types of feeding. I am of the opinion we should consider more and more the chemistry of foods, and its relationship to human pathology.

THE TREATMENT FOR GENERAL PARALYSIS WITH CEREBRAL LIPOIDS AND TRYPARSAMIDE

EMIL T. HOVERSON, M. A., M. D.

CHICAGO

In 1922 Von Jauregg¹ published the results of his work dealing with the malaria inoculation of patients suffering from general paralysis of the insane. He noted that a certain percentage of the patients so treated attained a state of remission sooner, and also that the percentage of remissions was greatly increased over that which had been previously obtained by using only symptomatic treatment. Since the introduction of therapeutically induced malaria in the treatment for general paralysis, many different forms of therapy have been in vogue. However, in spite of the variety of different methods, all seem to have as their basic principle the production of a hyperthermia. As far as is known there has not yet been advanced any satisfactory explanation as to the reason why a patient subjected to fever therapy should show any mental or physical improvement, or even why there should be ex-

¹From Chicago State Hospital and the University of Illinois, College of Medicine, Dept. of Pathology.

pected any special change. In other words, it seems that fever therapy such as is employed in the treatment for general paralysis is used merely because the percentage of remissions is thereby increased, and apparently the basis of the treatment is empirical. Of course no treatment should be condemned because it rests on a purely empirical basis, but likewise it should not be accepted as the last word in therapy simply because some patients attain a state of remission. A fact that is generally lost sight of in the various reports is that approximately half of the patients subjected to fever therapy show no improvement, and further, some of the patients showing no improvement continue in a progressive downward course resulting eventually in death, this in spite of the most intense treatment. Hence it seems that although fever therapy, regardless of the form or type used as long as it is satisfactorily carried out, is beneficial in some cases, in other cases the treatment does not exert any apparent beneficial effect. This latter fact is lost sight of in the different reports in which the emphasis is usually placed on the percentage of remissions obtained, and the failures are dismissed by merely recording them as such. The majority of reports themselves are concerned with the rapidity of obtaining the remission, the length of remission, the advantages of a new method, laboratory changes, and the social adjustment following treatment.

The writer in no way discredits the use of fever therapy as a therapeutic measure in certain cases of general paresis. Moreover no particular method of obtaining the hyperpyrexia seems to be superior except in so far as mechanical difficulties are concerned. Each particular method has its staunch advocates, but a comparison of the results obtained shows that each is productive of approximately the same final results. Hence the conclusion is that all methods, which are productive of satisfactory fever rises, are able to bring about such changes that result in a remission in a certain percentage of patients. The fact that all individuals do not respond favorably may be explained by the suggestion that the patients that do not show the same response as that occurring in the individuals who show improvement following treatment, is that therapy in certain individuals brings about changes, and that these changes are secondary to the primary changes which bring about

the remission. This will be later enlarged upon on the basis of oxidation-reduction reactions.

It is known that in the absence of any specific treatment about 3.5% of patients having general paralysis attain a state of remission.² Further this state of remission is just as complete, and possibly of longer duration than that obtained by the use of fever therapy. Hence it may be said that some individuals having general paralysis, can by changes or reactions not brought about by the use of external or internal therapeutic agents, and in the absence of specific treatment, attain a state of remission that is just as good and complete as that obtained by the most efficient forms of fever therapy. With the advent of arsenicals in the treatment of this condition, the percentage rate of remission was increased by a few per cent. The remission rate was still further increased by the use of the various fever methods of treatment. If the remission is the same no matter what the treatment or the lack of it, it seems logical to believe that similar reactions or changes have occurred in those attaining a state of remission, and because of the changes there occurred the state of remission. These statements are rather broad generalizations and are no doubt open to various objections. However, it is the writer's belief that all that occurs in the cases that go into a state of remission whether or not treatment has been given, is that something takes place which in turn instigates certain changes which in themselves are responsible for the remission or abeyance of mental symptoms.

While laboratory studies dealing with paretics who have attained a state of remission without any treatment are rather uncommon, it is known that some patients having general paresis may have such a reaction that will cause the disappearance of the syphilitic antibodies from both the blood and spinal fluid, with a resultant normal spinal cell count, and a flat Lange colloidal gold sol curve. This³ was demonstrated on a series of undisputed cases of general paresis to whom no treatment of any nature had been given, and who years later at the time of the study presented negative serology for syphilis on both the blood and spinal fluid. In these cases there apparently had occurred "something" which had caused the disappearance of the syphilitic antibodies in the absence of any type of specific treatment. In addition to this series of patients

having general paresis, data⁴ were also collected on a series of patients who once had showed a positive blood serology for syphilis, and who had at a later examination a negative serology for syphilis on the blood serum; all this in the absence of any treatment. Thus it seems reasonable to believe that some individuals having syphilis in some form are able to bring about the necessary changes that are needed to cause a disappearance of the syphilitic antibodies from both the blood and spinal fluid. Hence in the absence of treatment, both remission of mental symptoms and reversal of positive serology to negative may obtain.

Another observation⁵ in regard to paresis is that practically all individuals so afflicted show a marked disturbance in the basal metabolic rate, and the chances are about even that the rate will be increased over normal. Since the basal metabolic rate is really a measure of the oxidation-reduction processes that occur in the organism, it follows that in paresis there occurs some marked disturbance in the oxidation-reduction processes.

In 1931 Choroschko and his co-workers⁶ introduced cerebral lipoids in the treatment for general paresis. He postulated the belief that there occurred in this condition a disturbance of the lipoidal metabolism, and he believed that he supplied this deficiency through the medication of the lipoids. The results obtained by this form of treatment indicated that a beneficial effect was exerted on the parietic process. In 1933 work was undertaken at the Kankakee State Hospital under the direction of the author. In this cerebral lipoids prepared by Dr. Klein of the Wilson Laboratories, Chicago, were used. The original report⁷ dealing with this form of non-fever therapy was based upon results obtained on twenty-five patients, and the final conclusion was that this form of treatment was equal to or surpassed the effectiveness of fever therapy in producing remissions. The method had in addition the advantage that it was ambulatory in nature, produced remissions much sooner, and further, there needed to be no selection of cases. Undoubtedly selection of treatment cases plays a very important part in the final results, because it is well known that certain types and races respond better to fever therapy than do other types or races. Because of the fact that all patients were put on treat-

ment in the order of admission to the hospital, there is no doubt that if a selection were originally made, the final remission percentage would be much greater than that reported. The remission rate was 48%. All of the patients showed an improvement in the physical condition, and all but three showed mental improvement. In some patients mental improvement was not expected, for the degree of dementia was so marked that they were deemed unfit for treatment; they were merely treated in order not to have a selected group of cases.

It is believed that a second report on this type of treatment will be of additional value, for with the passage of time a greater number of patients have been treated, there has been a greater period of observation, and the duration of remissions is better evaluated. The method of carrying out the treatment procedure has not been materially changed in any way from that originally outlined. The lipid preparation is given in one cubic centimeter amount every other day, intragluteally, and in conjunction with the lipoids, tryparsamide is given in weekly intervals in the usual three gram dosage. All treatments are continued until a stationary condition obtains. This is usually obtained after approximately forty lipid injections, or about twelve weeks. In the cases where tryparsamide is not tolerated, bismuth in water soluble form, or mercury salicylate is given.

To date, forty-four patients have received what is termed sufficient treatment to reach such a state that further treatment produced no appreciable further change. In all cases there has been noted a marked improvement in the physical condition, and this has been accompanied by a general feeling of well being (although this is common in paresis; it does not seem to be an elation or euphoria). In about half of the cases, a good remission was obtained, and it was of such a character that the patient in question was deemed to have improved sufficiently to warrant his release from the hospital. These decisions were reached by the medical staff, not by the writer.

Of the patients who showed no further change upon additional treatment, 20, or 45%, were considered sufficiently improved to leave the hospital. This percentage rate agrees quite closely with the original figure of 48%. Of the remaining patients twelve showed a marked im-

provement mentally, although not enough to leave the hospital, six patients showed practically no change in their mental condition, and in the remaining six patients, no special mental change was observed. However, it is felt that if a selection of cases had been practiced, the majority of the twelve patients responding unsatisfactorily would have been deemed unfit for treatment, because of their far advanced dementia which was evident on admission.

In regard to the gains in weights, there occurred an average gain of 19.6 pounds, plus or minus 3.1 pounds. The greatest gain in weight was 47 pounds, and the least gain was one pound. In no case was there observed a loss of weight. In all cases, even those showing no special mental change, a decided improvement in the laboratory findings occurred, both on the blood and spinal fluid, with a return to within normal limits of the spinal cell count, a betterment of the serological reactions and in some cases negative serology. However, as has been showed the results on the serology may be questionable.⁸

A rather important finding as far as explaining the action of the lipoids was that the basal metabolic rate of the patients treated by lipoids returned to within normal limits after completion of treatment. Similar studies on untreated paretics, and on those who had been subjected to fever therapy, showed that the metabolic rate tended to be elevated or abnormal even after treatment. In other words, patients treated by lipoids have a normal metabolic rate, while those treated by fever therapy or untreated have abnormal rates.

The theory advanced as to why results ought to be expected following treatment by cerebral lipoids and trypsaramide is based largely upon the metabolic studies. Because of the agreement secured in metabolic studies, it is felt that paresis is primarily a disease of disturbed metabolism, and it is because of this abnormal metabolism that the physical and mental symptoms appear as they do.

All cellular activity depends upon two diametrically opposite reactions, namely, oxidation and reduction. Thus, when a stimulus is applied to a cell, the first reaction taking place chemically is one of oxidation. For some as yet unknown reason, the oxidation process proceeds to a certain stage and then stops. Just why it normally progresses to this state is not known.

The stage of oxidation is in turn followed by the stage of reduction, and the sum total of this reaction is that it restores the cell to an again reactive state. The reduction stage has also a limit to its reaction; it merely continues to a certain stage and then ceases. In certain conditions the oxidation stage is interfered with, and increased, and in these conditions there may be an actual cell destruction. This is seen in the conditions that are commonly associated with endocrine imbalances, such as hyperthyroidism, etc. Assuming that a condition should exist, in which oxidation proceeded unchecked, the final result would be the destruction and death of cells that were so affected. Dinitrophenol has the effect of increasing oxidation, but it apparently does not lead to any marked destruction of cells. However, it may be safely stated, that a cell whose normal oxidation-reduction mechanism is disturbed or changed, ought to react in an abnormal manner.

Paresis is a condition in which the brain and spinal cord are primarily attacked. Just why the syphilitic process should attack these structures is not known, but on the basis of data⁹ collected, it seems as if there exists a specific neurotrophic strain of spirochetes, and infection by this strain usually leads to paresis if other conditions of environment (precipitating factors) are present. Pathologically in paresis there occurs a rather diffuse destruction of cerebral cells, and the mental symptoms are indicative of a widespread involvement of the cerebral tissues, rather than focal involvement. Further, it is known that a close examination of the social and economic adjustment history of an individual who has developed mental symptoms of general paresis, usually shows that certain peculiarities existed years before the actual manifestation of acute mental symptoms, or to the occurrence of such symptoms that pointed out the existence of a mental abnormality to the members of the afflicted person's family or his acquaintances.

On this basis it is safe to say that the cerebral cells of an individual who later develops mental symptoms clearly recognized by the laity, had for many years an abnormal reaction of the cerebral cells. It is the abnormal state of the cerebral cells that accounts for the abnormal behavior; or, as stated, abnormal oxidation of

cells certainly leads to abnormal cellular reactions.

It is known that certain individuals having syphilis have an increased metabolism, and the term of syphilitic hyperthyroidism has been introduced to clinically designate this condition. Thus, if syphilis can give rise to disturbances of the oxidation-reduction mechanism, and if this disturbance leads to certain mental conditions, it seems reasonable to believe that this is the basis of the reaction in paresis. In paresis the syphilitic process is primarily confined to the cerebral tissues, and the occurrence of mental symptoms should be expected to be rather gradual in onset.

Since there have been no studies of the metabolism in the "asymptomatic" type of neurosyphilis it cannot be definitely stated that there occurs in that condition an abnormal metabolism, but it seems reasonable to believe that the metabolism is abnormal, for syphilis is known to produce hyperthyroid symptoms in some cases, and in paresis it is known that the metabolism is abnormal. Hence, from deduction it is believed that an abnormal metabolism occurs in the "asymptomatic" neurosyphilis.

That there occurs an abnormal lipoidal metabolism in the brains of those dying from paresis has been pointed out by Choroschko who observed that there was a diminution of the lipoidal content in these cases.

The theory offered as to why cerebral lipoids and trypsaramide should be beneficial in paresis is that the lipoids act primarily upon the oxidation-reduction mechanism and in that way restore a normal metabolism. With the return to normal of the metabolism, the cerebral cells are restored to normal activity. The action of the trypsaramide is to control the syphilitic process itself.

This theory can explain why a patient subjected to fever therapy may, or may fail, to show improvement. It is assumed for purposes of explanation that fever therapy stimulates the production of a substance that is capable of stabilizing the metabolism. The cases where improvement does not occur, does not have this substance produced. It likewise explains why a remission can occur without treatment.

CONCLUSIONS

1. Cerebral lipoids in conjunction with tryp-

saramide exerts a favorable effect in producing remissions in general paresis.

2. A theory has been advanced to explain the occurrence of mental symptoms in paresis, and as to why cerebral lipoids ought to exert a beneficial effect.

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- 6400 Irving Park Blvd.

DOES INSURANCE INCREASE THE PRACTICE OF PREVENTIVE MEDICINE?

Even the most enthusiastic advocates of insurance admit that sickness insurance has done little to develop or encourage measures for the prevention of disease. Individual immunization, regular health examinations and measures for the detection and treatment of incipient disease are, in all insurance countries, largely dependent on other agencies than insurance. The insurance practitioner is too hurried and is held too closely by restrictions imposed by administrators to give much attention to preventive work. Such preventive work is more extensive, reaches a larger percentage of the population and is better supported by the general public and the medical profession in the United States than in countries having compulsory sickness insurance.—From "Sickness Insurance Catechism."

One ship drives east, and another west
With the self same winds that blow.
'Tis the set of the sail,
And not the gale
Which decides the way to go.

Like the winds of the sea, are the ways of fate
As we journey along through life;
'Tis the will of the soul
That decides the goal.
And not the calm or the strife.

SYMPTOMS IN EARLY STAGES OF INDUSTRIAL PLUMBISM

In dealing with the problem of industrial plumbism, Roy R. Jones, Washington, D. C. (*Journal A. M. A.*, Jan. 19, 1935), believes that emphasis should be placed on those signs and symptoms commonly exhibited early in the course of absorption or intoxication. All observations should be considered in their relation to the entire clinical picture in order to arrive at a diagnosis, especially in the preintoxicative stage. All changes, listed as presumptive evidence should be thoroughly investigated. From a practical point of view it is believed that, by careful watching for an early reticulocyte response, the physician will be able to detect evidence of lead absorption prior to the development of definite plumbism.

DEFINITELY RADICALS

There are four radical groups in the United States:

1. The Socialists, who propose by educational methods and use of the ballot to bring about the common ownership of production, the chief industries manufacturing necessities, and of transportation.

2. The Communists, represented by the workers' party, who demand a state supremacy which will own, operate and conduct everything, and which supremacy they believe can only be established by an armed revolution.

3. The Syndicalists, whose basis of organization is belief in the ownership and control of all industries by the workers themselves, and who advocate the resort to sabotage and general strikes to attain their ends.

4. The Anarchists, who repudiate government of any kind and seek its destruction. Purely intellectual Anarchists are not dangerous, but active Anarchists have been guilty of many crimes against society.

DEFECTIVE AMMUNITION

When the doctor arrived he found the patient in tears.

"Cheer up, my good man," he said, "you'll pull through."

"It isn't that, doctor," groaned the patient, "but just think of all the money I've spent for apples to keep you away."—*London Humor*.

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday February 6, 1935

Auditorium—Medical and Dental Arts Bldg., 185 North Wabash Avenue.

Program Presented by the Faculty of Rush Medical College, Chas. H. Phifer, president.

Renal Hypoplasia—Robert H. Herbst and Carl Apfelbach.

Discussion—Herman L. Kretschmer.

Surgical Management of Acute Intestinal Obstruction—Edwin M. Miller.

Discussion—Arthur H. Parmalee; Dr. Gatewood.

Clinical Significance of Meckels Diverticulum—Albert H. Montgomery.

Discussion—Joseph Brennemann.

Regular Meeting, Wednesday February 20, 1935

TUBERCULOSIS

Tuberculosis Among Nurses and Physicians—J. A. Myers, Professor of Medicine, Minneapolis, Minn.

Public Campaign Against Tuberculosis—Kendall Emerson, Managing Director, National Tuberculosis Association, New York City.

Recent Research on Tuberculosis—H. J. Corper, Director of Research Laboratories, National Jewish Hospital, Denver, Colorado.

Cavities and Collapse Therapy—Benjamin Goldberg, Associate Professor of Medicine, University of Illinois.

Discussion: Henry C. Sweany, Jerome R. Head, Clarence L. Wheaton, Walter H. Watterson, Richard Davison, Samuel A. Levinson, Robert H. Hayes.

KANE COUNTY

The February meeting of the Kane County Medical Society was held Wednesday evening, February 13, 1935, at the St. Joseph's Hospital in Aurora.

Dr. Philip H. Kreuscher, a past president of the Illinois Medical Society, was the speaker of the evening, and he gave as his topic "Back Ache," which was very interesting both to the surgeon and general practitioner.

After the scientific session was concluded a business meeting was held, there was a roll call of the past presidents, the following being present: Drs. W. H. Schwingel, George Haan, H. A. Brennecke, J. W. Dreyer, and R. H. Graham, of Aurora, Dr. L. J. Hughes of Elgin, and Dr. Carl Struve of South Elgin.

The new officers were formally inducted into office:

Dr. Karl J. Kaiser of Aurora, President.

Dr. M. H. Hubrig of Elgin, Vice-President.

Dr. K. M. Manougian of Elgin, Secretary and Treasurer.

Dr. R. H. Graham of Aurora, is the retiring past president.

Dr. Chas. F. Read, Superintendent of the Elgin State Hospital, extended an invitation to the society to hold their April meeting at the Elgin State Hospital. This invitation was accepted.

DOUGLAS C. HURLEY, M. D.,
Elgin, Ill.

Marriages

EDWIN J. DE COSTA to Miss Mari Helene Bachrach, both of Chicago, January 5.

Personals

Dr. C. I. Reed gave a lecture on "Animal Experimentation" at the Springfield Y. M. C. A. on February 28.

Dr. Arthur J. Cramp gave a lecture on "Pink Pills and Panaceas" before the Lakeview Woman's Club on February 26.

Drs. Charles H. Phifer and Julius Hess presented a program on the Illinois Emergency Relief plan before the physicians, dentists and pharmacists of McHenry County at Crystal Lake on February 21.

Drs. Thomas P. Foley and Clarence L. Wheaton presented the scientific program for Franklin County Medical Society on February 28, subjects, "Common Sense Treatment of Heart Diseases" and "Lobar Pneumonia."

Dr. C. C. Maher addressed the Whiteside County Medical Society at Sterling, Illinois, on February 28.

Dr. John R. Wolfer gave a talk on "Some Problems in the Management of Gall Bladder and Biliary Tract Disease" before the DeWitt County Medical Society on February 25.

Drs. George K. Fenn and Guy M. Cushing presented the scientific program at the Warren County Medical Society, February 27, subjects "Angina Pectoris" and "Acute Perforating Gastric and Duodenal Ulcers."

Dr. James H. Hutton gave a lecture on "Practical Points in Endocrine Diagnosis and Treatment" before the Christian County Medical Society on February 27.

Dr. Morris Braude has been appointed attending physician to the Cook County Psychopathic Hospital.

Dr. Andrew C. Ivy, Chicago, spoke before the Rock Island County Medical Society, February 12, on "Applied Physiology of the Biliary Tract."

Dr. Charles F. Geschickter, Baltimore, addressed the Chicago Orthopedic Society, February 8, on "Tumors of the Bone."

At a meeting of the Chicago Laryngological and Otological Society, February 4, Drs. I.

Davidsohn and John A. Cavanaugh discussed "Infectious Mononucleosis" and "Sphenoid on Parade," respectively.

At a meeting of the Will-Grundy County Medical Society, February 13, Dr. Jerome R. Head, Chicago, discussed "Surgical Treatment of Pulmonary Tuberculosis."

A symposium on the socialization of medicine was presented before the Eleventh Councilor District Medical Society, February 14; speakers were Drs. Rollo K. Packard, Chicago, Harold M. Camp, Monmouth, and John R. Neal, Springfield.

Speakers before the Chicago Surgical Society, February 1, included Drs. Alexander Brunschwig on "Large Doses of Calcium in Treatment of Metastases to Bone"; Hilger Perry Jenkins, "Delayed Pedicle Skin Grafts," and Harold C. Voris, "Surgery of the Frontal Lobes."

Dr. Wingate Todd, Henry Willson Payne professor of anatomy, Western Reserve University School of Medicine in Cleveland, addressed the Society of Sigma Xi, at the University of Chicago, February 20, on "A Study in Child Development."

Dr. Simon Flexner of the Rockefeller Institute for Medical Research, New York, will present the thirteenth Pasteur Lecture of the Institute of Medicine of Chicago at the Chicago Woman's Club, April 26. His subject will be "Virus Diseases of the Central Nervous System: Their Extent and Mode of Infection."

Dr. Gains E. Harmon, recently appointed epidemiologist of the Chicago Board of Health, has been named professorial lecturer in epidemiology and vital statistics in the department of hygiene and bacteriology, in the Division of Biological Sciences, University of Chicago. He plans to give a special course in epidemiology during the spring quarter.

Dr. Don C. Sutton addressed the Mid-South Post Graduate Medical Assembly, February 12, on "Heart Disease Complicated by Pregnancy," February 13, "Arteriosclerosis." Also to address the Mid-South Anesthetists Association on "The Effects of Anesthesia on the Heart."

Before the Union County Medical Society, January 10, Dr. Liter of St. Louis spoke on angina pectoris of effort, its symptoms, etiology, pathology and treatment. February 14, Dr. Ralph A. Kinsella gave an address.

News Notes

—A symposium on transurethral resection constituted the program of the Chicago Urological Society, January 24; speakers were Drs. Edward W. White, Harry Culver, Herman L. Kretschmer and Irvin S. Koll.

—The Chicago Medical Society held a memorial meeting, January 27, in honor of its members who have died in the past year. In addition to a musical program, Dr. William Allen Pusey, discussed "Medicine the Last Fifty Years and the Next Fifty," and Frederick F. Shannon, pastor of the Central Church, "Some Doctors I Have Known."

—Dr. George W. Crile, Cleveland, addressed the Public Affairs Round Table of the Union League Club of Chicago, January 25, on "Medical Research, Health and Longevity." This lecture accompanied the first showing of the sound motion picture "That Man May Live," prepared by the American College of Surgeons.

—Dr. Royd R. Sayers of the U. S. Public Health Service, Washington, D. C., discussed "Silicosis as a Factor in Compensation and Personal Injury Cases" at a meeting, January 26, sponsored by the hospitality committee of the Chicago Bar Association. Members of the Chicago Medical Society and the Chicago Society of Industrial Medicine and Surgery were invited.

—The Iowa and Illinois Central District Medical Association held its quarterly meeting at the Blackhawk Hotel in Davenport, Iowa, January 11. The president, Dr. John C. Souders, Rock Island, gave a tribute to Dr. George L. Eyster, who practiced medicine in the community for fifty-five years and who now lives in Coral Gables, Fla. Other speakers were Drs. Merrill M. Benfer, Davenport, on "Consideration in the Treatment of Hypertrophied Prostate"; William H. Olmstead, St. Louis, "Vascular Diseases of the Extremities," and Louis G. Herrmann, Cincinnati, "Recent Advances in the Treatment of Obliterative Arterial Diseases of the Extremities." Several patients with arterial disease of the extremities were presented at this meeting.

—The use of the same syringe by several narcotic addicts was said to be the cause of an outbreak of malaria recently. Five deaths from the disease in the county hospital prompted a raid

on the hotel where two of the victims lived. Two of the men arrested were found to be potential malaria carriers, having had the disease several years ago. They confessed to being part of a group of addicts that usually met together and used the same syringe.

—The Medical Credit Bureau was recently organized by the Peoria City Medical Society to furnish members with the financial rating of patients. Under the plan, "all worthy individuals will receive medical care as heretofore, but the person or persons having the means but not the desire to remunerate the physicians for services rendered will be asked to receive medical care and attention from the proper municipal, state or federal agencies created for that purpose."

—The Illinois Manufacturers' Association sponsored a technical discussion on occupational disease from the medical point of view at the Congress Hotel, January 31. The speakers included the following:

Dr. Leroy U. Gardner, director, Saranac Laboratory, Saranac Lake, N. Y., Pathology of Silicosis.

Donald E. Cummings, assistant director of the laboratory, Etiology, Clinical Findings and Prevention of Silicosis.

Homer L. Sampson, ScD., director, x-ray laboratory, Trudeau Sanatorium, Saranac Lake, Roentgen Findings.

A conference was held in the evening, at which speakers were:

F. Robertson Jones, New York, general manager, Association of Casualty and Surety Executives, Problems of Compensation in Occupational Diseases.

Peter J. Angsten, chairman, Illinois Industrial Commission, Occupational Diseases and the Industrial Commission.

Dr. Clarence O. Sappington, consulting industrial hygienist, Some Medicolegal Phases of Occupational Diseases.

—H. 96 proposes to impose a tax of 10 per cent. of the gross cash receipts from sales in Illinois on persons manufacturing patent and proprietary medicines in the state. H. 97 proposes to authorize the sexual sterilization of insane, feeble-minded, mentally defective, idiot, imbecile or epileptic inmates of state institutions. H. 44 proposes to repeal the laws regulating the dis-

tribution and possession of narcotic drugs and to enact what apparently is the uniform narcotic drug act. H. 109 proposes to accord liens to physicians and hospitals treating persons injured through the negligence of others, on all rights of actions, suits, claims or demands accruing to the injured persons because of their injuries.

—H. 191 proposes to require a male applicant for a license to wed to present a certificate from a licensed physician that the applicant is free from venereal disease.

—H. 236 proposes to accord to physicians, dentists, drugless practitioners, nurses and hospitals, treating persons injured through the negligence of others, liens on all rights of actions, claims, judgments, settlements or compromises accruing to the injured persons by reason of their injuries.

—The Ligue Internationale contre le Rhumatisme will hold its 5th International Congress at Lund (Sweden) in September 1936. Prof. Dr. S. Ingvar, Professor of Internal Medicine in the University at Lund has been elected Chairman, Prof. Dr. G. Kahlmeter, Stockholm, Secretary.

Further information to be had from the Secretary of the Ligue Int. c. 1. Rhumatisme, Dr. J. van Breemen, Keizersgracht 489/491, Amsterdam.

—The opening of the Arthritis Clinic of Wesley Memorial Hospital is announced by Mr. Paul H. Fesler, the Hospital Superintendent. Facilities are provided for an exhaustive research and pathologic and clinical study of arthritis cases. It is also the purpose to institute medical and surgical treatment and to evaluate the present method of therapy. A seminar, open to all physicians interested in this subject, is held each Monday from ten to twelve. The conduct of this Clinic is under the direct supervision of Dr. Philip H. Kreuscher and Dr. Gilbert Marquardt.

Deaths

LINCOLN MOCK BOWMAN, Alton, Ill.; Rush Medical College, Chicago, 1886; member of the Illinois State Medical Society; aged 74; died, January 9, of heart disease following pneumonia.

WILLIAM E. BUXTON, West Salem, Ill.; Central College of Physicians and Surgeons, Indianapolis, 1881; member of the Illinois State Medical Society; president and formerly secretary of the Edwards County Medical Society; aged 76; died, January 2, of pneumonia.

GREEN ALEXANDER CAIN, Chicago; Meharry Medical College, Nashville, Tenn., 1893; aged 62; died recently, of intestinal obstruction.

MARTIN LUTHER GETTINGER, Palestine, Ill.; American Medical College, St. Louis, 1880; aged 76; died, December 20, 1934, in Santa Fe, N. M., of pneumonia.

GEORGE BENSON KELSO, Bloomington, Ill.; University of Michigan Homeopathic Medical School, Ann Arbor, 1886; member of the Illinois State Medical Society; aged 74; died, January 27, in St. Petersburg, Fla., of coronary thrombosis.

FRANK BUSBY PARKER, Ursa, Ill.; Keokuk (Iowa) Medical College, 1893; aged 63; died, December 10, 1934, in St. Mary Hospital, Quincy, of encephalitis.

MAURICE R. PERLSTEIN, Chicago; Chicago College of Medicine and Surgery, 1914; aged 43; died, January 21, of hydronephrosis and myocarditis.

HENRY JOHN PLENZ, Chicago; Northwestern University Medical School, Chicago, 1910; aged 46; died, January 14, of organic heart disease.

ROBERT ANDREW POYNTON, Chicago; Niagara University Medical Department, Buffalo, 1891; on the associate staff of the South Chicago Hospital; aged 69; died, January 22, of uremia, cerebral arteriosclerosis and subacute coronary thrombosis.

DENNIS P. RUSSELL, Chicago; Rush Medical College, Chicago; 1890; aged 74; died, January 15, of cirrhosis of the liver.

WILLIAM THOMPSON, Morrisonville, Ill.; Missouri Medical College, St. Louis, 1881; aged 76; died recently, of lymphatic leukemia.

AUGUSTUS E. VENN, Chicago; University of Pennsylvania School of Medicine, Philadelphia, 1893; aged 69; died, January 7, in the Alexian Brothers' Hospital, of chronic myocarditis following operation for intestinal obstruction.

LAWRENCE WELLS WHITMER, Chicago; College of Physicians and Surgeons of Chicago, 1892; aged 75; formerly on the staff of the Illinois Masonic Hospital, where he died, January 2, of chronic myocarditis and hypostatic pneumonia following an operation for gallstones.

FREDERICK WREDE, Chicago; Miami Medical College, Cincinnati, 1880; also a druggist; aged 84; died, December 30, 1934, of chronic myocarditis and arteriosclerosis.

HENRY LEE YODER, Morton, Ill.; Missouri Medical College, St. Louis, 1899; a Fellow A. M. A.; aged 62; died, November 21, 1934, in the John C. Proctor Hospital, Peoria, of prostatic obstruction and pyonephrosis.

CHARLES BENJAMIN YOUNGER, Chicago; Northwestern University Medical School, Chicago, 1902; a Fellow, A. M. A.; assistant professor of otolaryngology at his alma mater; fellow of the American College of Surgeons; past president of the Chicago Laryngological Society; aged 59; on the staff of the Wesley Memorial Hospital, where he died, January 11, of coronary thrombosis.

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TIME	MONDAY	TUESDAY		WEDNESDAY		THURSDAY		FRIDAY	
	April 29	April 30		May 1		May 2		May 3	
9:00 A. M. to 12:00 M.	Morning, free. Registration, Exhibits, etc.	Special Morning Lectures	1st Clinical Session	Special Morning Lectures	2nd Clinical Session	Special Morning Lectures	3rd Clinical Session	Special Morning Lectures	4th Clinical Session
12:00 M. to 2:00 P. M.	Luncheon	Luncheon		Luncheon		Luncheon		Luncheon	
2:00 P. M. to 5:30 P. M.	1st General Session	3rd General Session		5th General Session		6th General Session		7th General Session	
5:30 P. M. to 8:00 P. M.	Dinner	Dinner		Dinner					
8:00 P. M. to 11:00 P. M.	2nd General Session followed by Smoker	4th General Session		Convocation, followed by President's Reception and Dance		ANNUAL BANQUET			

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CONTENTS:

ORIGINAL ARTICLES

- Modern Diet and the Child Bearing Problem. *Daniel Thomas Quigley, M. D., Omaha, Neb.* 339
- Present Status of Ocular Surgery. *Oscar B. Nugent, M. D., Chicago.* 345
- The Benign Melurias. *Thomas D. Masters, M. D., Springfield, Ill.* 351
- The Clinic Habit. *Charles H. Parkes, M. D., Chicago* 354
- Preparedness for Burns of the Eye. *A. B. Middleton, M. D., Pontiac, Ill.* 357
- Statistical Status of Diabetes. *G. Howard Gowen, M. D., Chicago.* 360

- Transurethral Prostatic Resection. *Gershom J. Thompson, M. D., Rochester, Minn.* 365
- Calculus Disease of the Urinary Tract. *Leo A. Maslow, M. D., Chicago.* 367
- Post-Spinal-Anesthetic Headache. *Samuel Peluse, M. D., Chicago.* 372
- Poisonous Spider Bites in Illinois. *Tom Kirkwood, M. D., Lawrenceville, Ill.* 377
- Rupture of Quadriceps Tendon Above Patella. *F. G. Murphy, M. D., Chicago.* 379
- Painless Coronary Occlusion. *Fred Stenn, M. D., Chicago* 381
- Silicosis. *Wendell Stewart, M. D., East St. Louis, Ill.* 382

(Continued on Page 8)

Eighty-Fifth Annual Meeting at Rockford, May 21, 22, 23, 1935

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Editorials

JUDGE M. L. MCKINLEY HOLDS THAT A CORPORATION CANNOT PRACTICE MEDICINE

State of Illinois, County of Cook, ss.

In the Superior Court of Cook County.

People of the State of Illinois, by Otto Kerner, as attorney general, Petitioner, vs. United Medical Service, Inc., Respondent. No. 34-S 6737 Quo Warranto.

Opinion by Judge M. L. McKinley.

This matter comes before the Court upon a "Statement of Agreed Case" by and between the parties litigant, as above designated, together with a further stipulation and agreement by and between said parties submitting to the Court fourteen points of law at issue between the parties litigant. The Court will immediately proceed to a discussion of and a decision on the fourteen points of law as raised and incorporated in the "Statement of Agreed Case."

(It is further stipulated and mutually agreed by and between the said parties that the POINTS OF LAW at issue between them are as follows:)

Question A. Is the court without jurisdiction in this form of action to grant the relief prayed in the petition, because of the reasons set forth in the aforesaid First Plea?

Answer to Question A. The Court is not without jurisdiction, but has complete jurisdiction, in this quo warranto action to grant the relief prayed in the petition.

In order to answer this question it is necessary first to ascertain what is at issue here and what is provided by the quo warranto statute under which this suit has been brought.

The relief prayed for in the petition is set out on page 10 of the "Statement of Agreed Case." The prayer is for "the consideration of the Court in the premises and for such due process of law as may be awarded against the respondent and that it answer the petition by what right, title, warrant or authority it claims to have and hold such franchise to practice medicine, or any of its branches, or any system or method of treating human ailments, and to use and to enjoy the rights, privileges and emoluments thereto appertaining."

Under the law it is the duty of the respondent to justify its action or conduct or to disclaim the alleged action or conduct. In this case by the agreed statement

of facts the respondent puts itself in the position of *admitting and justifying its conduct* and its practice of treating human ailments.

This is a proceeding under the Illinois statute providing for the remedy of quo warranto, so that it is pertinent to examine that statute and ascertain what judgment the Court may enter in a case of this kind. The statute provides:

"In case any person or corporation against whom any such information is filed is adjudged guilty, as charged in the information, the court may give judgment of ouster against such person or corporation from the office or franchise, and fine such person or corporation for usurping, intruding into, or unlawfully holding and executing such office or franchise, and also give judgment in favor of the relator for the costs of the prosecution: Provided, that instead of judgment of ouster from a franchise for an abuse thereof, unless the court is of the opinion that the public good demands such judgment, the court may fine the person or corporation found guilty in any sum not exceeding \$25,000 for each offense. Whenever judgment is given for any defendant in such information, the person or corporation to whom judgment is given shall recover costs against the relator."

From this we see that a *finding of guilty is necessary*, that is, a finding that the corporation is guilty of practicing a "system or method of treating human ailments," and "using and enjoying the rights, privileges and emoluments thereto appertaining." After such a finding of guilty the Court may give judgment ousting the corporation from practicing any system or method of treating human ailments and using or enjoying the rights, privileges and emoluments thereto appertaining, or may fine the corporation for usurping, intruding into, or unlawfully holding and executing such system or method of treating human ailments and using and enjoying the rights, privileges and emoluments thereto appertaining. The amount of the fine may not be in excess of \$25,000 for each offense.

Manifestly the *respondent's position* is that it may practice the healing of human ailments by employing licensed doctors, and that in that case the *doctors* are practicing the treatment of human ailments and *not the corporation*. But this point has been *completely foreclosed* by the Supreme Court of Illinois in the case of *People v. Stock Yards State Bank*, 344 Ill. 462, at the bottom of page 476 and the top of page 477, where the Court says with reference to the practice of law by corporations:

"That it (the corporation) used for that purpose the services of licensed attorneys in its employ does not alter the fact that it was *thus practicing law*."

Manifestly the Supreme Court of this state has therefore decided that a corporation employing licensed doctors to give treatment for human ailments would *itself thereby* be practicing the treatment of human ailments.

The foregoing has been stated to determine exactly *what the point* is, so that the Court may discuss with full information the *question of jurisdiction* raised under Question A.

It is petitioner's contention that the practice of medicine, under the Medical Practice Act, is restricted to *individuals* who are *able to comply* with the provisions relative to moral character, educational benefits and official tests by examination, which cannot be complied with by a corporation as such.

It is also petitioner's contention that the respondent is violating the law in treating human ailments by licensed doctors employed and paid by the respondent, and by receiving compensation from patients for such treatment, and also that the Quo Warranto Act meets the necessities of procedure by the provision, in Section 1, that the action in quo warranto may be available against "*any corporation * * * (which) * * * exercises powers not conferred by law.*"

The respondent contends, with reference to this provision and whether quo warranto is available under it in this case, that this form of action is not available in this case for three reasons: 1. Because there is an adequate remedy by injunction under general equity jurisdiction; 2. Because there is an adequate remedy in the Medical Practice Act by prosecution of the corporation and subjecting it to a fine (imprisonment, of course, not being available for a corporation); and 3. Because the Business Corporation Act provides for adequate relief at the instigation of the attorney general against corporations under certain circumstances.

1. As to equity jurisdiction for preventing a corporation from "exercising powers not conferred by law," there is no such jurisdiction in a case of this sort.

Counsel for the respondent has cited authorities for the proposition that the proper method of procedure in this case is by injunction, under the general equity jurisdiction of the Court, rather than by quo warranto. None of the cases cited by counsel for respondent for that proposition is a case in which, as here, it was sought to oust a *valid existing corporation* from the *usurpation* of a franchise *improperly* granted to the corporation. The cases cited by him are: (1) cases in which it was sought to stop the improper use of a franchise *properly* granted to the corporation; (2) cases in which it was sought to enjoin *individuals* from improper activities on behalf of a *corporation operating within the law*; and (3) cases in which it was sought to enjoin *persons* from attempting to carry on *corporate activities* when the existence of the corporation was challenged by the People.

The only relief sought by the People in this case is the *ouster* of the *corporation* from a *franchise improperly granted* to the corporation. The existence of the corporation is admitted; and there is no complaint made against the activities of the officers; and there is no complaint that there is any improper use of any power *properly granted* in the charter. Petitioner complains that the improper grant of power in the charter is being used in violation of the Medical Practice Act. This distinguishes the case at bar from all cases cited by counsel for respondent.

This action is brought under the Illinois statute providing for the quo warranto action. Petitioner has proceeded with strict adherence to the exact language of the act. The act provides that it is applicable where a corporation "*exercises powers not conferred by law.*" It will be observed, therefore, that quo warranto lies where the corporation exercises assumed powers, or powers that have been usurped. In the case at bar the corporation is shown to exercise certain powers, or

a certain license, or right, created and controlled by the Medical Practice Act, and that the power which the corporation exercises is not only not conferred on a corporation by law, but is impliedly denied to it by the peculiar language of the Medical Practice Act. This situation certainly comes under the plain statutory language of the quo warranto act. The charter of the corporation states as one of its objects "prevention and treatment of disease." The Secretary of State had no lawful right to issue a charter to the corporation for any such purpose so that this stated object in the charter is nugatory and invalid. It is not necessary to cite authorities for the proposition that the stated object in the charter is not conclusive as to what the lawful object of the corporation is, but may be held to be unlawful as an object of the corporation. Equity jurisdiction has never in such a case as this undertaken a remedy by injunction, and even if it did our statute, with its peculiar provision, would nevertheless make quo warranto applicable.

The cases decided by the Supreme Court of the state are in complete harmony with the statutory provision. There is no case in which the Supreme Court of Illinois has decided that a case like this is not available under quo warranto but is available under injunction. There are a number of cases decided by our Supreme Court in which the right to use a franchise or hold a public office was litigated in which quo warranto was the procedure, in which judgment was entered on the theory that quo warranto was the right procedure, but in which the court and counsel apparently had no suspicion that injunction would have been the proper remedy, and in which therefore the precise objection that injunction was the proper procedure was not raised. It is not necessary to cite these numerous cases, simply because the point was not actually raised and litigated.

However, the Appellate Court for the First District, in *Ziebell v. Village of Posen*, 257 Ill. App. 32, speaking through Mr. Justice McSurely, entered into a discussion of the distinction that governs between quo warranto in cases like the case at bar and injunction in proper cases, and said:

"As against defendant's position, it has been held as a general proposition that an injunction will lie to prevent unlawful acts of a municipal corporation. *Griswold v. Brega*, 160 Ill. 490; *People ex rel Nelson v. Taylor*, 281 Ill. 355, and cases there cited. To the same effect are decisions in other jurisdictions. *Layton v. Mayor and City Council of Monroe*, 50 La. Ann. 121; *City of Pueblo v. Stanton*, 45 Colo. 523; *Morris v. City of Nashville*, 74 Tenn. 337.

Quo warranto would not lie in the instant case because there had been no usurpation or assumption of franchise by the defendant. * * *

In *People ex rel Koerner v. Ridgley*, 21 Ill. 65, it was held that the information for quo warranto was insufficient because there was no definite averment that the defendants held or exercised any office, or franchise. Other cases to the same effect are: *People ex rel Evans v. Callaghan*, 83 Ill. 128; *People ex rel Brothers v. Dodds*, 310 Ill. 607; *People ex rel Wilcox v. Barber*, 265 Ill. 316; *People ex rel Mark v. Hartquist*, 311 Ill. 127. * * * In *High on Extraordinary Remedies*, 3rd Ed. sec. 627, the author says that to lay the foundation for proceedings by quo warranto: "There must in all cases have been an actual possession and user of the franchise. It is not sufficient, therefore, that the person against whom the remedy

is invoked should have merely claimed the right to take the official oath but an absolute user must also be shown."

In the case at bar the territory had not yet been annexed and the defendant had not yet assumed to exercise control over it when the bill was filed; consequently, it was not possible by quo warranto to inquire by what right the Village exercised authority over the territory. Under such circumstances complainant properly sought the assistance of a court of equity. *People v. McWeeney*, 259 Ill. 161; *Morgan Park v. City of Chicago*, 255 Ill. 190."

This case is in point, because in the case at bar there has been shown conclusively, by the stipulation of facts to that and, *usurpation and assumption of the franchise, license or right to practice the treatment of human ailments*. The petition in the case *averred that the respondent held and exercised the franchise, license and right to practice the treatment of human ailments*. Therefore, not only was there the proper averment in the petition but there was the proper proof at the trial, that the respondent *had actually usurped, assumed and taken into its actual possession and use the franchise, license or right charged to have been withheld from respondent by the provisions of the Medical Practice Act*.

The article on Quo Warranto in Ruling Case Law, at Section 18 thereof, confirms Mr. Justice McSurely's statement of the law. From that section we quote the following excerpts:

"It is, however, clear that the power to dissolve corporations for cause has always been legal and not equitable, and in the absence of a statute conferring jurisdiction upon courts of equity the question whether or not a corporation has violated its charter or forfeited its franchise is a question for the sole determination of a court of law. *Where a corporation exercises a franchise not conferred upon it, it should be proceeded against by quo warranto and not by injunction to restrain its act.*" * * *

It is, of course, understood that the expression "a franchise not conferred upon it" means a franchise not lawfully conferred upon it.

It appears, therefore, that counsel's contention that this court is without jurisdiction, on account of the form of the action, to grant the relief prayed in the petition, as contended by counsel in his first plea, referred to in Question A, is without merit.

It is manifest that there is no remedy in a case like this by injunction under the general equity powers of this court, nor by any provision in the Medical Practice Act, nor by the provisions relative to ultra vires in the Business Corporation Act. The three reasons urging failure of jurisdiction under quo warranto alike fall to the ground.

2. As to the contention that there is an adequate remedy in the Medical Practice Act by enforcing the criminal penalties against the corporation for practicing without a license, the Court has this to say: The only penalties under the Medical Practice Act are punishment by imprisonment and by fine. A corporation may not be punished by imprisonment, and can be punished only by a fine. Consequently the remedy under the Medical Practice Act is punishment by fine. The question is whether that method is an adequate remedy for a violation by the corporation of the Medical Practice Act under the circumstances set out in the "Statement of Agreed Case." As a practical matter the corporation, under such circumstances, could continue the vio-

lation of the Medical Practice Act by paying a small fine occasionally. It would be impracticable to institute a criminal suit on the basis of every treatment because the names of the patients would not be known nor could the number of treatments be ascertained. The punishment by fine would therefore be merely spasmodic. The machinery of criminal prosecution would be burdened by the constant pressure of innumerable cases. Conviction in one case would have nothing to do with conviction in another case. The multiplicity of suits would be so great as to be a disgraceful misuse of the criminal law, to say nothing about the inefficiency of such procedure to reach the point that is here raised, viz., whether the corporation in question is misusing its charter power, or whether it has been chartered by the Secretary of State to do something that the Secretary of State has no authority to charter it to do. It does not seem possible that those who are promoting the organization and operation of the respondent would prefer criminal proceedings daily, for such proceedings would not only be burdensome as to consumption of time and expenditure of money but would suggest to the public, through the inevitable publicity in such matters, criminal conduct on the part of the promoters of the corporate enterprise, whereas by this proceeding it is possible to avoid an undesirable result of that sort. The present procedure does not suggest criminal conduct, but suggests merely an inquiry into a naked proposition of law, viz., whether a corporation as such may practice the treatment of human ailments.

3. As to the argument that the Business Corporation Act provides an adequate remedy by injunction and excludes procedure by quo warranto, the Court has this to say: In the first place, no procedure by injunction for this sort of case is provided by the Business Corporation Act. That fact really settles the controversy on this point. An examination of the Business Corporation Act, at Section 8 thereof, the section relied upon to provide the injunctive relief, discloses that a procedure by injunction under the Business Corporation Act is limited so as to exclude a resort to injunction in a case like this. The second paragraph of Section 8, in substance, provides that no limitation upon the business, purposes or powers of a corporation shall be asserted "*in order to defeat any action at law or in equity between the corporation and a third person or between a shareholder and a third person involving any contract to which the corporation is a party or any right of property or any alleged liability of whatsoever nature,*" except by certain methods prescribed in the section, the one alleged to apply here being designated (c). Now it must be perfectly apparent that this case is not one that may be designated "an action at law or in equity between the corporation and a third person or between a shareholder and a third person involving any contract to which the corporation is a party or any right of property or any alleged liability of whatsoever nature." This case has been brought to determine the charter right of a corporation to pursue a certain license or franchise. It does not constitute an action between a corporation and a third person, be-

cause it is an action between the corporation and *the State or the People*, who would not be referred to in a statute as "*a third person.*" Neither is it an action between a shareholder and a third person. Neither does the suit involve any contract to which the corporation is a party or any right of property. The Business Corporation Act manifestly does not intend that the charter of a corporation shall come under the designation of "contract" in such a provision, or that it will come under the designation "any right of property" in such a provision. Sub-section (c) is subordinated to all of the limiting phrases in the second paragraph of Section 8 that we have been referring to, and provides that in cases so limited the limitation may be asserted "in a proceeding by the State to enjoin a corporation from the transaction of unauthorized business." It is clear that the injunctive remedy is not applicable to a case like this because a case like this is not included within the limitations that apply to all of the proceedings described in the sub-sections (a), (b) and (c).

Counsel for respondent attempts to support his contention in regard to Section 8 by resorting to the sections 82, 83 and 84 of the Business Corporation Act. These specifically apply only to "involuntary dissolution." This suit is not aimed at dissolution of the corporation, because the corporation, under entirely lawful provisions of its charter, may carry on enterprises that are lawful, but is aimed at the provisions in the corporation's charter that the corporation may not lawfully exercise, such as the "treatment of disease." In fact, the corporation, so far as the statement of its activities is concerned, might very well be considered lawful, except for the phrase in its stated objects "treatment of disease," which is the specific part of the charter brought into consideration in this case. Some of the provisions of the charter naturally raise the question whether they are not intended to do a thing that is in violation of law, but the expression "treatment of disease" does not merely raise a question but plainly states an object which is a violation of the Medical Practice Act.

But, as was said by counsel for petitioner in the oral argument, all this argument about the provisions of the Business Corporation Act is plainly put out of issue by the rule which has been laid down by our Supreme Court to the effect that if there are two methods of procedure provided for the same thing the People may choose one of them as against the other. It follows that even if the Business Corporation Act provides a method by injunction that could be used, that fact does not prevent the Attorney General from proceeding under the quo warranto act in a proper case under the provisions of that act.

In the case of *Snowball v. The People*, 147 Ill. 260, at pages 264 and 265, in which Mr. Justice Magruder wrote the opinion, the Court said:

"The general principle is that in the absence of any controlling constitutional restrictions upon the subject, the jurisdiction of the courts to proceed by information in the nature of quo warranto is not taken away by a statute which prescribes a special proceeding, unless there are express words in the statute itself taking away such jurisdiction, or unless it appears to have been the manifest intention of the legislature to confine

the remedy to the prescribed proceeding, and to the designated tribunal."

With reference also to *C. & N. W. Ry. Co. v. City of Chicago*, 148 Ill. 141, at 160, in which Mr. Justice Magruder wrote the opinion, the Court approved a statement in *Sutherland on Statutory Construction*, as follows:

"Where a statute gives a new remedy * * * and contains no negative, express or implied, of the old remedy, the new one provided by it is cumulative, and the party may elect between the two."

In *People v. Board of Education*, 349 Ill. 390, at 400, the Court said:

"Where two statutes are enacted which have relation to the same subject, the earliest continues in force unless the two are clearly inconsistent with and repugnant to each other or unless in the latest statute some express notice is taken of the former plainly indicating an intention to repeal it, and where two acts are seemingly repugnant, they should, if possible, be so construed that the later may not operate as a repeal of the former by implication. (*Town of Ottawa v. County of La Salle*, 12 Ill. 339; *People v. Burke*, 313 id. 576; *Village of Glencoe v. Hurford*, 317 id. 203; *People v. Goldberg*, 332 id. 346; *Walgreen Co. v. Industrial Com.* 323 id. 194.) It is not enough to justify the inference of repeal that the subsequent statute covers some, or even all, of the questions covered by the former. There must be an irreconcilable repugnancy. (*Kizer v. City of Mattoon*, 332 Ill. 545.)"

Also in *People v. West Englewood Bank*, 353 Ill. 451, in which Mr. Justice Jones wrote the opinion. This case is authority for the well settled rule in this state that repeal of laws by implication is not favored and the rule that laws relating to the rights of the State cannot be abrogated except by express provisions of a statute. The opinion in that case says:

"*Repeal of laws by implication is not favored.* This is a general proposition which is applicable to all laws, and it is only where there is a clear repugnance between two laws and the provisions of both cannot be carried into effect that the later law must prevail and the former be considered repealed by implication. (*People v. Burke*, 313 Ill. 576.) It is not enough to justify the inference of repeal of a prior statute that a subsequent statute covers some, or even all, of the questions covered by the former. There must be an irreconcilable repugnancy. (*Kizer v. City of Mattoon*, 332 Ill. 545.) * * * Repeal of laws by implication is even less favored when they affect the sovereign than when they affect the citizen. We know of no case in which this topic is directly treated which does not hold that laws affecting the rights of a sovereign cannot be abrogated except by express provisions of a statute."

There can be no controversy that the quo warranto act does provide for this sort of case, as we have shown above. There can be no doubt that the provisions of the Business Corporation Act do not specifically repeal the principal provision of the quo warranto act. If there is any repeal of the provision of the quo warranto act by the provisions of the Business Corporation Act that repeal must be by implication. As to possible repeal by implication we have to take note of the fact that the very section of the quo warranto act resorted to by the Attorney General and other sections of the quo warranto act were revised, and a new section was added to the quo warranto act, by the General Assembly of 1933, the same general assembly that passed the Business Corporation Act. In other words, the same general assembly, at the same session, passed the provision of the Quo Warranto Act that is relied on by petitioner and the provisions

of the Business Corporation Act that counsel for respondent relies on. *The Court is bound to construe the two provisions together, as cumulative*, and to hold that the legislature intended that both should be available to the Attorney General according to their terms in proper cases.

It is apparent, therefore, that Question A should be answered No.

Question B. Is the power to define what constitutes the practice of medicine a power which belongs to the Legislative Department or to the Judicial Department of the Government?

Answer to Question B. This question may be answered by the statement that the power to define what constitutes the practice of medicine belongs to the legislative department and not to the judicial department, and that in this case the legislature has exercised its power to define the practice of medicine by the passage of the Medical Practice Act, and that it is the business of the judicial department to enforce the provisions thereof.

The Medical Practice Act, in the broadest possible language, takes within the State's jurisdiction full control and regulation of the practice, and occupation, of the treatment of human ailments, commonly called the practice of medicine. This act covers all of the various kinds of practice, whether by the use of medicines and drugs or by the use of any other agencies of healing, whether the treatment is carried on by regular practitioners, osteopaths, chiropractors or any of the other kinds of healers. The Medical Practice Act does not use except in its opening section the expression "practice of medicine," but in place thereof, by Section 24, enumerates the specific things that are licensed under the act and which may not be done without a license. The plan of the act is to specify the things which specifically the act regulates and to require a license to do those things and to provide a penalty for doing them without a license. The license to do the things that are enumerated in Section 24 is a right of franchise granted by the state. *The object of this suit is to prevent the respondent from using this license, right or franchise, because it is without authority to obtain a license.* Its practice by the use of licensed physicians is, as the Supreme Court said in the action pertaining to lawyers in *People vs. Stock Yards State Bank*, *supra*, practice by the corporation itself as such. The stipulation of fact admits that the corporation has no license and never applied for one.

This whole situation comes up under the Medical Practice Act, which is an act of the General Assembly in the exercise of the police power. This court is not asked to employ the police power on its own initiative, or on its own right, but is asked to enforce an act of the legislature passed within the domain of the police power. Counsel for respondent, by his question, implies that there has been no use of the police power in the regulation of the practice of medicine, wherein he is mistaken, because the Medical Practice Act does the very thing which he intimates has not been done.

Question C. If the power to define what constitutes the practice of medicine is a legislative power and the

Legislature has not exercised that power, have the courts jurisdiction to grant the relief prayed in the petition filed herein?

Answer to Question C. The power to define the practice of medicine is a legislative power and the General Assembly of Illinois has exercised that power fully and has left to the Court the duty to enforce the provisions of the act, and this Court has jurisdiction to grant the relief prayed for in the petition and in the "Statement of Agreed Case."

With reference to the answers to Questions A, B and C, the Court calls attention to the case in which the Supreme Court of this state considered this very Medical Practice Act, and held it constitutional, *People vs. Walden*, 317 Ill. 525, in which the Court said:

"The medical practice act of 1923 prohibits any person from treating human ailments without the license required by the act and provides a penalty for violation of its provisions. * * * It is generally conceded that it is proper for the legislature to prescribe minimum requirements of education for admission to examination for the purpose of securing a license to treat human ailments, * * *. Every person may have occasion to consult a physician, but comparatively few persons can judge the qualifications of learning and skill which he possesses. Any person who professes to practice any system of treating human ailments has to deal with those mysterious influences upon which health and life depend, and no person can claim the right to enter that profession who does not have a knowledge of the human body, its complicated parts and their relation to each other, and a knowledge of the effect upon the human body of substances which might cause sickness or destroy life. Whatever method of treating human ailments is used by a physician, he should be able to detect readily the presence of disease and prescribe appropriate remedies for its removal. * * * The medical practice act of 1923 recognizes the different methods of treating human ailments and prescribes reasonable and uniform regulations for testing the qualifications of persons who desire to practice medicine in all its branches and persons who desire to practice some limited form of treating human ailments. This act meets the constitutional objections which rendered void the earlier medical practice acts and is valid legislation. *People v. Witte*, 315 Ill. 282."

It will appear from the examination of this case that the medical practice act in this state is an exercise of the police power in regulating what is commonly called the practice of medicine, and that the Medical Practice Act is a complete foundation of the exercise by this Court of its powers of quo warranto, without trespassing in any manner upon the legislative authority to exercise exclusively the police power of the state.

Question D. Can this proceeding be maintained without first alleging and proving that the respondent has been charged with and convicted of violation of the "Medical Practice Act," as set forth in the afore-said Second Plea?

Answer to Question D. It would seem absurd to argue that the state is without authority to keep a corporation within the bounds of its charter unless it first procures a criminal conviction of the corporation. That is the proposition argued in Question D. The Court maintains that there is no authority for any such proposition. The law is specific that a corporation may be restricted to the operation of its charter powers without resorting first to a criminal action for the conviction of the corporation. A corporation's activities, though in violation of its charter, in many cases would not come within the purview of any crim-

inal statutes or constitute any violation of the criminal law, and therefore the corporation could not be prosecuted. In such a case would counsel for respondent argue that on that account there would be no procedure by which the State could keep the corporation within the bounds of its charter? The answer to this question must be that there is no connection between an action to keep the corporation within the bounds of its charter and a criminal action to punish it for violating a statute. Question D is answered in the affirmative.

Question E. Do the provisions of the "Medical Practice Act" and of the "Business Corporation Act" and the jurisdiction of the equity courts provide such proper and adequate remedies of relief as to exclude this form of action as a remedy?

Answer to Question E. The answer to this question is that the provisions of the Medical Practice Act and of the Business Corporation Act and the jurisdiction of the equity courts do not provide such proper and adequate remedies of relief as to exclude this form of action. This subject has been discussed above in connection with other questions and the basis for the answer has there been specified.

Question F. Does the ownership by a corporation of a Clinic with offices wherein the treatment of physical and mental infirmities, the diagnosis of human ailments, the suggestion, recommendation and prescription of forms of treatment for the palliation, relief and cure of diseases are engaged in, solely by duly licensed and registered physicians and surgeons, who are employed by the corporation, which receives the fees charged the patients, constitute the practice of medicine by the corporation?

Answer to Question F. This question is answered in the affirmative. The Supreme Court of Illinois in *People vs. Stock Yards State Bank*, 344 Ill. at 476, said:

"That it (the corporation) used for that purpose the services of licensed attorneys in its employ does not alter the fact that it was thus practicing law."

This pronouncement by the Supreme Court binds this Court in this case. Whatever alleged distinctions may be reached between that case and the one at bar with respect to various features in it, there is no question that the Supreme Court in that case determined flatly that the practice of the licensed lawyers was the practice of the corporation, and, by analogy, the finding must be made here that the practice of the licensed doctors is the practice of the corporation. It is not possible to argue now that the corporation in this case is not practicing the treatment of human ailments but that the physicians employed by it are. The Supreme Court has closed that avenue of escape for respondent, and leaves this court no opportunity to deal with the question anew.

Question G. Does the form of advertisements above set forth constitute a public holding out by the respondent that it, the corporation, is practicing medicine?

Answer to Question G. The advertisements of the corporation appearing in the "Statement of Agreed Case" are solicitations of persons to go to the corpora-

tion for the treatment of their ailments. They constitute, in the language of Section 24 of the Medical Practice Act, a holding of the corporation out "to the public as being engaged in the diagnosis and treatment of the ailments of human beings," which can be done only by individual doctors with licenses under the Medical Practice Act. This question is answered in the affirmative.

Question H. Is it the public policy of this State to empower corporations to own and operate clinics, hospitals, dispensaries and sanitariums when organized for such purposes?

Answer to Question H. The Court is of the opinion this question is designed to create a pit into which the Court may be expected to fall. The answer to this very ingeniously framed question is: It is the public policy of the state to deny to corporations any power to do the act enumerated in Section 24 of the Medical Practice Act, and this denial applies without any limitation except those that are specified in the Medical Practice Act, if any, which does not take over otherwise jurisdiction over clinics, hospitals, dispensaries or sanitariums. What the public policy of the state may be with reference to clinics, hospitals, dispensaries and sanitariums seems not to have been declared otherwise by the General Assembly, and the Court is not called upon in this proceeding to define the public policy as to these institutions, and this proceeding does not raise any such point as to them, as such.

Question I. Does any, and if so what, provision of the "Business Corporation Act," or of any other statutory enactment of the State of Illinois, prohibit a corporation organized for profit from owning and operating a clinic, dispensary, hospital or sanitarium wherein any and all medical services are rendered by duly licensed and registered physicians and surgeons?

Answer to Question I. The Medical Practice Act, by the necessary construction of all its provisions, prohibits the practice of treating human ailments by corporations organized for profit, or, whether so organized or not, in fact pursuing the occupation of treating human ailments for profit, and confines it to individuals having a license thereunder to carry on this occupation, and the Business Corporation Act has no application to the field covered by the Medical Practice Act, and does not regulate in any manner the occupation of treating human ailments.

Question J. In the absence of any exercise of police power of the State by the Legislature, through legislative enactment, prohibiting corporations from owning and operating clinics, hospitals, dispensaries and sanitariums, have the Courts the power or jurisdiction to prohibit corporations from so doing?

Answer to Question J. This is another crafty, intriguing question which suggests a pit for the Court to fall into. The answer is this: There is no absence of the exercise of the policy power of the State of Illinois by the legislature for the regulation of the occupation of treating human ailments. That power has been fully exercised by the General Assembly, and the Court is called upon merely to enforce the provisions of the act so exercising the police power. As

far as this Court knows, there is no legislative enactment regulating clinics, hospitals, dispensaries and sanitariums as such, and this Court is not called upon in this proceeding to take jurisdiction of any such institutions, otherwise than as it considers the occupation of treating human ailments, as covered by the Medical Practice Act. This Court is not called upon in this proceeding to prohibit the ownership or operation of clinics, hospitals, dispensaries or sanitariums, as such.

Question K. If and as the existing statutes enacted in the exercise of the police power of the State in relation to the practice of medicine do prohibit corporations from owning and operating clinics, hospitals, dispensaries and sanitariums, wherein any and all medical services are rendered by duly licensed and registered physicians and surgeons, is not such exercise of the police power unreasonable, and are not such statutes, to that extent, invalid and in contravention of the Constitution of the State of Illinois and particularly of Section 2 of Article II thereof, and of the Constitution of the United States, and particularly of the Fourteenth Amendment thereto?

Answer to Question K. The answer to this question is: This Court is interpreting the Medical Practice Act in this proceeding and does not find anything in it that has been brought to its attention by this proceeding that violates the Constitution of the State of Illinois, or the Constitution of the United States in any respect whatever.

Question L. May the respondent hold itself out to the public as being engaged (solely by and through the services of physicians and surgeons duly licensed and registered under the "Medical Practice Act" and employed and paid by the respondent) in the diagnosis or treatment of ailments of human beings; or suggest, recommend or prescribe a form of treatment for the palliation, relief or cure of any physical or mental ailment of any person, with the intention of receiving therefor, either directly or indirectly, any fee, gift, or compensation; or diagnosticate, or attempt to diagnosticate, operate upon, profess to heal, prescribe for, or otherwise treat any ailment, or supposed ailment, of another; or maintain an office for the examination or treatment of persons afflicted, or alleged or supposed to be afflicted, by an ailment, without violating the "Medical Practice Act," or the "Business Corporation Act," or without usurping the liberty, privileges and franchises of engaging in such diagnosis or treatment of diseases of human beings, or without exercising powers not conferred upon it by law?

Answer to Question L. The answer to this question is No, for the very good reason that in this case the respondent is shown to be usurping the liberty, privileges and franchises of engaging in the diagnosis or treatment of diseases of human beings, contrary to the Medical Practice Act, particularly Section 24 thereof, and that therein it is exercising or attempting to exercise powers not conferred upon it by law.

Question M. Under the facts existing and the law involved in this case, is the petitioner entitled to have judgment against the respondent ousting the respondent from the franchise, occupation or business of holding

itself out to the public as being engaged in the diagnosis or treatment of ailments of human beings, or from suggesting, recommending or prescribing a form of treatment for the palliation, relief or cure of physical or mental ailments of persons, with the intention of receiving therefor, either directly or indirectly, any fee, or compensation, or from diagnosing, or attempting to diagnose, operate upon, profess to heal, prescribe for, or otherwise treat any ailment, or supposed ailment, of another, or from maintaining an office for the examination or treatment of persons afflicted, or alleged or supposed to be afflicted by an ailment; or from usurping, intruding itself into, or unlawfully holding or executing any such franchise, occupation or business, or judgment for a fine assessed against the respondent in some sum not exceeding \$25,000, according to the statute in cases of quo warranto?

Answer to Question M. The petitioner is entitled to have judgment against the respondent, ousting the respondent from the franchise, occupation and business of holding itself out to the public as being engaged in the diagnosis or treatment of ailments of human beings, and from suggesting, recommending or prescribing any form of treatment for the palliation, relief, or cure of physical or mental ailments of persons, with the intention of receiving therefor either directly or indirectly any fee, or compensation, and from diagnosing, or attempting to diagnose, operate upon, profess to heal, prescribe for, or otherwise treat, any ailment, or supposed ailment, of another, and from maintaining an office for the examination or treatment of persons afflicted, or alleged or supposed to be afflicted, by any ailment; and from usurping, intruding itself into, or unlawfully holding or executing any such franchise, occupation, or business, either by or through the services of physicians and surgeons duly licensed and registered under the Medical Practice Act, and employed and paid by the respondent or otherwise.

ATTEMPTED CORPORATION PRACTICE OF MEDICINE IN OTHER STATES

At the oral argument counsel for petitioner cited and quoted from some of the cases involving the corporate practice of medicine in other states. The Court concludes this opinion by citing here the cases upon which it relies as precedents for the Court in deciding this case:

People ex rel Illinois State Bar Association v. Peoples Stock Yards State Bank, 344 Ill. 462.

Parker v. Board of Dental Examiners, 216 Calif. 285; 14 Pac. (2nd) 67. (California).

State v. Myers, 128 Ohio St., 191 N. E. 99.

People v. Painless Parker, 50 Colo. 25; 275 Pac. 928 (Colorado).

State v. Bailey Dental Co., 211 Ia. 781; 234 N. W. 260 (Iowa).

Winslow v. Kansas, 115 Kans. 450, 223 Pac. 308.

People v. John H. Woodbury & Co., 192 N. Y. 454; 85 N. E. 697.

Hannon v. Siegel-Cooper Co., 167 N. Y. 244; 60 N. E. 597.

Lewis v. Woodbury D. P. Co. 175 N. Y. Supp. 269.

Hodgen v. Commonwealth, 142 Ky. 722.

Reference was made by counsel on both sides to the Nebraska situation. In that state the Supreme Court

decided two cases, *State Electro Medical Institute vs State*, 74 Neb. 40, 103 N.W. 1078 and *State Electro Medical Institute vs Platner*, 74 Neb. 23, 103 N.W. 1079. Those cases were decided on the ground, as this Court understands, that a corporation was not necessarily practicing medicine because it provided for treating human ailments by the use of duly licensed doctors. That decision can be of no force in this state because our Supreme Court in *People vs Stock Yards Bank*, 344 Ill. 462, having under consideration whether corporations could practice law, approved the very opposite to the view taken by the Supreme Court of Nebraska, holding on pages 476 and 477:

"That it (the corporation) used for that purpose the services of licensed attorneys in its employ does not alter the fact that it was *thus* practicing law."

Consequently we are not able in this state to give the Nebraska cases very serious consideration.

Counsel for respondent cited the case in Missouri, *State vs. Levin*, 128 Mo. Appeals, 149, which was decided by an inferior court in Missouri and in which the Court took the position contrary to that taken by the Supreme Court of Illinois in *People vs Stock Yards State Bank*, *supra*, so that that case has no effect here.

Counsel also cited *Liggett Company vs Baldridge*, 278 U.S. 105. The Supreme Court of Colorado held in *People vs Painless Parker Dentists*, 85 Colo. 304, 275 Pac. 928, that the Liggett case "was not pertinent here," and dismissed it from the discussion of the question whether a corporation may practice dentistry. The Liggett case was also cited in *Parker vs Board of Dental Examiners*, 216 Calif. 285, 14 Pac. (2nd) 67, in which the question whether a corporation could practice dentistry was considered, and was apparently passed over as not pertinent.

In answer to the last question of law stated in the "Statement of Agreed Case," Question M, this Court has stated its opinion as to what the judgment should be in this case, and directs that judgment be entered as there indicated. Counsel for petitioner will prepare a draft order in manner conformable.

MEET ATTORNEY HARRY EUGENE KELLY

In the Superior Court of Cook County on March 22, 1935, Judge M. L. McKinley decided that it is illegal for corporations to practice medicine in Illinois. This sweeping decision of Judge McKinley makes pertinent here an extended comment upon one of the vital personalities in this historic legislation precipitated over two years ago by the Chicago Medical Society and the Illinois State Medical Society.

Although this is the second time that the Medical Practice Act of Illinois has been sustained legally by that Court upon this critical point, the notable opinion of Judge M. L. McKinley published elsewhere in this issue is the

most complete and comprehensive that has ever been handed down by any court upon this extremely important controversy. Well known members of the Bar have expressed confidence that on account of its clarity and sound legal wisdom this decision will stand as the type and exemplar for all similar trials that may be brought in other states. The Attorney General, Judge Kerner, proceeded in this matter with ability and with the determination of settling the problem and the medical profession is greatly indebted to him.

Conduct of the prosecution so wisely handled in both cases was by Harry Eugene Kelly, assistant to the Attorney General. For many years Mr. Kelly has devoted himself to the study of the legal side of medical practice. He is the author of a book on the regulation of medical practice published by the American Medical Association.

Up until 1917 the Medical Practice Act of Illinois was so inadequate that frequently it was declared unconstitutional by the Illinois State Supreme Court. Therefore there was imperative necessity for either an entirely new Medical Practice Act, or for a careful revision of that then existing.

This crisis was recognized promptly by a few of the members of the official family of the Illinois State Medical Society, men who for years have been persistently active in furthering the cause of medical science and who were desirous of protecting the legally qualified doctors of the state against the inroads of the quacks. So these gentlemen cast about for competent legal aid. An official of the A. M. A. recommended Mr. Kelly, claiming that Mr. Kelly probably knew more about medico-legal affairs than any other lawyer in America; and stating further that Mr. Kelly had gained considerable political experience when he was a member of the legislature of the state of Colorado, and that subsequently his energetic activities had cleaned up in Colorado the problem of medical quackery.

Together with a leading member of the legislative committee of the Illinois State Medical Society, Mr. Kelly set up the present Illinois Medical Practice Act, and with the aid and the co-operation generally of the members of the profession secured its passage by the legislature in 1923.

At least half a dozen times has the 1923 Medi-

cal Practice Act been up before the Illinois State Supreme Court; each time it has been sustained by that august tribunal. This present Illinois Medical Practice Act is conceded generally to be the most competent and best medical practice act on the statute books of any state in the union.

Attorney Harry Eugene Kelly is by no means unknown in Chicago and throughout the state, although his modesty and high sense of professional fitness restrain him from those forms of self-exploitation which have brought many lawyers conspicuously before the public. That he is an excellent citizen is shown by his election to the presidency of the Union League Club of Chicago. That he is regarded as an able and conscientious lawyer is patent from his selection as assistant attorney general for the management of this controversy for the state, by the Attorney General for Illinois, Otto Kerner.

Since 1923 the Illinois Medical Practice Act has been opposed persistently by the proponents of chain store medical practice; by those for the practice of medicine by corporations; for the lay practice of medicine, and for the whole swarm of guerilla bands who are ever attacking the ethical practice of medicine, and now as never before. In vain these interests have uniformly employed delay, continuances, procrastination, postponement, garrulity, demurrage and every other possible plan of defeating the public interests by open and by indirect methods.

Supported by the confidence and the sagacity of Attorney General Kerner, Mr. Kelly stood firmly by his task in spite of violent attacks and an almost overwhelming campaign. The medical profession has abundant reason to rejoice that Mr. Kelly's knowledge of law, his patience, and his masterly skill in court procedure have been so worthily endorsed by the all-embracing verdict of Judge M. L. McKinley.

DR. OTHO BOYD WILL

In the passing of a pioneer physician, after sixty years of practice, there is much substance for the older man to ponder and much to stimulate the young man. Born under pioneer conditions in Pennsylvania in 1846, moving west to Canton, Illinois, and graduating from Rush Medical, he started to practice in the country at Kickapoo in 1869. This was soon after the close

of the Civil War in reconstruction days, a period similar financially to the present time—when Illinois had no Medical Practice Law and any one could set up an office. And there, with saddle bags, by dint of thrift, long hours of hard work and study, he accumulated a competence that has withstood four major panics, forty years of his wife's invalidism, and permitted him the comforts of a cloistered home life surrounded by his many beloved books and with good nursing through his declining years, which is a triumph in itself.

We can duly pause in honor to the memory of this man whose energy and determination routed many a stalking tragedy; who early gave up general practice and by repeated trips to surgical centers, constant attendance at medical societies and foreign study, fitted himself for the speciality of Gynecology; and assisted by Drs. Hamilton and MacIlvaine founded the Cottage, now the Proctor Hospital; who established the first body of aseptic trained nurses in these parts and was the first to perform an aseptic abdominal operation with both scientific and clinically successful termination; who by the labor of example and through medical literature aided in the establishment of aseptic surgery in central Illinois; who with consistent results in operations was able to spread the feeling among the laity that entrance to a hospital was no longer a major catastrophe and that surgery was no longer only the last resort, in fact creating a hopeful field for elective surgery in central Illinois.

We pause in honor to the physician who with almost prophetic foresight took his kit of instruments with him on an excursion and thereby became the medical hero of the Chatsworth wreck; to the clinician with immaculate habits, who when a country family of five was stricken with smallpox and deserted by all, entered the home, performed all the menial duties, doctored and nursed the family for nearly two weeks until they were able to care for themselves; and who on another occasion left his horse and swam the swollen Kickapoo to bring relief to a farm home; who founded and edited for a decade the *Peoria Medical Journal*; who has been honored as no other Peorian with the office of President of the Illinois State Medical Society; who lived in the changing epoch caused by the discovery of bacteria as the etiology of infections; who lived through the many factional fights (and there have been many long and bitter ones) without being enmeshed

therein; who encouraged the younger men to attend their medical societies and make contributions to medical literature.

Of a rather tall and frail physique, immaculate in dress and frequently enduring personal illness, serious, reserved, always professional in appearance and manner yet kindly disposed, rather a stoic in philosophy, conscientious but firm in his beliefs and in himself, careful of his time, spending evenings in study, frequenter of medical societies and taking a part therein, a clear thinker, gifted by nature with a clear style and elegant diction, a good clinician and a master in handling of patients, a hard worker, a careful surgeon, a deft, skilful operator with multitudes of friends but few intimates, a very tender and considerate man in his home, quite overcome with the sickness and death of all his children; so in the Autumn of Life, approaching 89 years, Otho Boyd Will passed to his reward, trusted and beloved by his patients; honored by his profession, a proud, distinguished, professional gentleman of the Old School.

DR. J. H. BACON.

SCIENTIFIC EXHIBIT

The Scientific Exhibit will be one of the most attractive and instructive features of the Rockford meeting of the Illinois State Medical Society. There will be exhibits on electrocardiography, cardiac pathology, cancer, disorders of the glands of internal secretion, allergy, and arthritis as well as by the Department of Health of the State of Illinois and the American Medical Association. Some of these are sponsored by individuals some by teaching institutions. The committee hopes that there will be more exhibits from non-teaching hospitals, sanatoria and clinics and by individuals from outside Cook County.

Dr. Kreuscher will again be in charge of the Fracture Demonstration.

A limited amount of space available for exhibits remains. Applications will be received until May 1, 1935. Those desiring space communicate with N. S. Davis, III, the Secretary of the Committee on Scientific Exhibits, 700 North Michigan Avenue, Chicago, Illinois.

VETERANS' DINNER

At the May meeting of the State Society there will be held the annual Veterans' dinner under the auspices of the Veterans' Service Committee.

The dinner will be in the Faust Hotel Ball Room Tuesday, May 21, at 6:30 p. m. Following the dinner prominent speakers will present views on the veterans' affairs in general. Dr. F. O. Fredrickson, presiding. The program for the occasion is as follows:

Why Hospitalization of Non-Service Connected Cases? Elmer W. Mosley, M. D., Department Surgeon, Department of Illinois American Legion.

Veterans' Medical Legislation as It Affects the Medical Profession. E. H. Cary, M. D., Dallas, Texas, past President of the A. M. A., chairman of Committee on Veterans' affairs.

The Service Program of American Legion. Paul G. Armstrong, M. D., Commander of the Department of Illinois, American Legion.

EIGHTY-FIFTH ANNUAL MEETING

The preliminary program for the 85th Annual Meeting of the Illinois State Medical Society is published in this issue of the ILLINOIS MEDICAL JOURNAL. The officers of the Society, the Committee on Arrangements, and other committees are working in unison to make this 1935 Annual Meeting an outstanding one.

Although this preliminary report does not give all information concerning the Annual Meeting, it will show the membership that everyone interested in the arrangements is working for the best interests of the Society, and hope to have a meeting which will appeal to all.

The Secretaries' Conference will begin at 9:00 a. m., Tuesday, and the program is one which will appeal to everyone and it is hoped that all county society officers and many members will be present for the Conference.

The Pediatricians have arranged their usual Tuesday morning program, and in addition to their special meeting, several interesting Pediatrics papers have been scheduled for the various sections.

The Oration in Medicine will be delivered by Dr. James S. McLester, President-elect of the American Medical Association, Birmingham, Alabama. Dr. McLester has not definitely announced his subject, but it will surely be one of general interest to all physicians.

The Oration in Surgery will be delivered by Dr. Martin Nordland, of Minneapolis, Minnesota, on Wednesday morning, at 11:00 o'clock.

The fracture demonstrations which were pre-

sented last year and which proved so popular, will be continued this year, and a very interesting schedule is being arranged. Full particulars of these demonstrations and those participating in same, will be announced in the May JOURNAL.

The Committee on Scientific Exhibits has arranged an unusually fine array of scientific exhibits for the meeting, and for the first time in the history of the Illinois State Medical Society, suitable awards for the best exhibits in each class will be given by the committee. The list of scientific exhibits as appearing in this preliminary program is not complete, but we will have more to say about them in the May JOURNAL.

The first meeting of the House of Delegates will be held on Tuesday afternoon at 3:00 o'clock, and the second meeting, on Thursday morning at 8:30. Each Society is entitled to representation in the House of Delegates, and should be sure that their regularly elected delegate, or his alternate, will be on hand.

The Winnebago County Medical Society, acting as host for the meeting, is desirous of having a meeting this year which will long be remembered, and they are anxious to see the best attendance in the history of the Illinois State Medical Society.

All sessions will be held under one roof—the Faust Hotel—and all exhibits will likewise be shown in the same building.

All members desiring hotel reservations may obtain same by writing the Hotel Committee, or the Manager of the Faust Hotel, Zach Jenkins, who has assured us that his famous hostelry is ours for the 1935 Annual Meeting.

THE PRESIDENT'S DINNER

Wednesday Evening, May 22, 1935

Wednesday evening is devoted to the honoring of the President of the Illinois State Medical Society. The President's dinner honoring our President, Dr. Charles S. Skaggs, will be held at 6:30 o'clock at the Faust Hotel. The program for the occasion has not yet been released, but further announcements relative to same will appear in the May ILLINOIS MEDICAL JOURNAL. It is hoped that every member of the Society present at the meeting will arrange to attend the President's dinner.

The remainder of the evening following the dinner will be devoted to dancing and bridge.

There will be no lengthy speeches by anyone at any time during the evening.

The immediate Past President, Philip H. Kreuscher, will act as toastmaster for the dinner.

VETERANS' SERVICE COMMITTEE DINNER

The annual dinner meeting of this committee will be held at the Faust Hotel, on Tuesday evening, May 21, at 6:00 o'clock. Dr. F. O. Fredrickson, Chairman of the Committee, will be in charge of the meeting and an interesting program is being arranged. Every physician, whether a veteran or not, is cordially invited to attend this meeting, and the completed program will be announced in the May ILLINOIS MEDICAL JOURNAL.

THE STAG

The Winnebago County Medical Society is arranging an interesting "Stag" for members and guests at the meeting, although they are not yet willing to make specific announcements relative to the nature of same. During the "Stag," motion pictures showing the work done by the American Medical Association, the "plant," printing presses and other equipment at headquarters will be featured in this interesting film. Every member of the A. M. A. should know what the Association is doing not only for physicians, but also for the public in general, and this film gives this interesting information.

We are reliably informed that there will be nothing in any way offensive to anyone at the stag, and it is hoped that all members and guests of the Society will be present on Tuesday evening, May 21, at 9:00 o'clock.

MEETINGS OF THE HOUSE OF DELEGATES

Tuesday Afternoon, May 21, 1935

3:00—First meeting of the House of Delegates called to order by the President, Charles S. Skaggs, for Reports of Officers, Councilors, Committees, introduction of resolutions, and for the transaction of other business which may come before the House.

Thursday Morning, May 23, 1935

8:30—Second meeting of the House of Delegates called to order by the President, for election of officers, councilors, committees, and delegates and alternates to the American Medical Association. Re-

ports of Resolutions Committee and action on same, and for the transaction of other business that may come before the House.

SECRETARIES' CONFERENCE

Elizabeth R. Miner, *Chairman*.....Macomb
C. D. Snively, *Vice-Chairman*.....Ipava
Donald W. Killinger, *Secretary*.....Joliet
Tuesday Morning, May 21, 1935

9:00-12:00—"Medical Economic Problems of Today and the Future."—Olin West, Secretary and General Manager of the American Medical Association, Chicago. Discussion opened by Harold M. Camp, Secretary of the Illinois State Medical Society, Monmouth.

"Can Medicine Solve Its Own Problems?"—Bowman C. Crowell, Associate Director of the American College of Surgeons, Chicago.

Discussion opened by John R. Neal, Chairman of the Legislative Committee of the Illinois State Medical Society, Springfield.

"Health Insurance and Other Plans for the Solution of Medical Economic Ills."—R. K. Packard, Chairman of the Council of the Illinois State Medical Society, Chicago.

Discussion opened by Edwin S. Hamilton, Councilor of the 11th District of the Illinois State Medical Society, Kankakee.

"Is Medical Relief a Forerunner of State Medicine?"—Mr. B. C. Roloff, State Director of Medical and Dental Service of the Illinois Emergency Relief Commission, Chicago.

Discussion opened by C. E. Wilkinson, Councilor of the 8th District of the Illinois State Medical Society, Danville.

Annual Election of Secretaries' Conference.

PEDIATRICIANS' MEETING

W. L. Crawford, *Chairman*.....Rockford
John Vonachen, *Vice-Chairman*.....Peoria
Arthur H. Parmelee, *Secretary*.....Oak Park

Tuesday Morning, May 21, 1935

9:00—"Scarlet Fever, Susceptibility and Im-

munization."—Silber C. Peacock, Chicago.

Discussion opened by Ray C. Armstrong, Champaign; John S. McDavid, Oak Park.

"Significance of Electrocardiography in Children."—M. M. Lewison, Chicago.

Discussion opened by H. W. Elgahammer, Chicago; J. H. Wallace, Oak Park.

"The Allergic Infant."—Gerald M. Cline, Bloomington.

Discussion opened by I. H. Tumpeer, Chicago; J. P. Burgess, Rock Island.

"The Problem of the Asthmatic Child."—F. W. Schultz, Chicago.

Discussion opened by O. E. Ehrhardt, Springfield; Stanley Gibson, Chicago.

PEDIATRICS PAPERS IN SCIENTIFIC SECTIONS

Wednesday, May 22, 10:15 A. M.

SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Archibald Hoyne of Chicago, Illinois.
Subject—"Meningococcus Meningitis, Importance of Intravenous Therapy."

Discussion by Dr. Joseph T. O'Neill of Ottawa.

Wednesday, May 22, 10:40 A. M.

SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Joseph Greengard of Chicago, Illinois.
Subject—"Passive Immunity in Infants and Their Response to Diphtheria Toxoid."

Discussion by Dr. Maurice L. Blatt and Dr. I. Harrison Tumpeer of Chicago.

Wednesday, May 22, 3:30 P. M.

SECTION ON RADIOLOGY

Dr. John F. Carey of Joliet, Illinois.
Subject—"Value of X-Ray in Pediatric Diagnosis."

Discussion by Dr. Craig D. Butler of Oak Park and Dr. John A. Bigler of Highland Park.

Wednesday, May 22, 4:50 P. M.

SECTION ON MEDICINE

Dr. Scott J. Wilkinson of Decatur, Illinois.
Subject—"Stumbling Blocks in Infant Care."

Discussion by Dr. Arthur F. Abt of Chicago, and Dr. M. D. McNeal of Highland Park.

WOMAN'S AUXILIARY AND ALL VISITING LADIES OFFICERS

President, Mrs. Lucius Cole.....River Forest
Vice-President, Mrs. W. D. Chapman....Silvis
First Vice-President, Mrs. W. R. Cubbins....

.....Chicago
Second Vice-President, Mrs. H. I. Conn.....

.....Newman
Third Vice-President, Mrs. Meyer Solomon....

.....Chicago
Corresponding Secretary, Mrs. J. P. Simonds..

.....Chicago
Recording Secretary, Mrs. W. Raim....Chicago
Treasurer, Mrs. F. P. Hammond.....Chicago

Convention Chairman, Mrs. Harry J. Dooley...
.....Oak Park

COUNCILORS

Mrs. D. J. Evans 1st District

Mrs. E. E. Beatty..... 2nd District

Mrs. N. M. Percy..... 3rd District

Mrs. G. Henry Mundt..... 3rd District

Mrs. A. H. Brumback..... 3rd District

Mrs. F. E. Bollaert..... 4th District

Mrs. M. B. Jelliffe..... 5th District

Mrs. F. T. Brenner..... 6th District

Mrs. John E. Black..... 7th District

Mrs. E. S. Allen..... 8th District

Mrs. E. W. Burroughs..... 9th District

Mrs. J. L. Foulon..... 10th District

Mrs. E. R. Steen..... 11th District

CHAIRMEN OF STANDING COMMITTEES

OrganizationMrs. A. B. Middleton

Press and Publicity.....Mrs. L. B. Joslyn

Legislative.....Mrs. Wm. D. Chapman

Printing.....Mrs. R. K. Packard

Convention.....Mrs. H. J. Dooley

Program.....Mrs. A. G. Aschauer

Revisions.....Mrs. R. F. Stanton

Public Relations.....Mrs. A. H. Brumback

Credentials and Registration...Mrs. Imas Rice

Hygeia.....Mrs. H. B. Henkel

Finance.....Mrs. Fred Adair

Archives.....Mrs. A. W. Grote

Hostess.....Mrs. A. H. Brumback

CHAIRMEN OF LOCAL COMMITTEES

General Chairman....Mrs. Joseph S. Lundholm

Registration.....Mrs. W. R. Fringer and

.....Mrs. T. H. Culhane

Information.....Mrs. M. P. Rogers and

.....Mrs. H. W. Ackemann

Hygeia.....Mrs. H. B. Henkel
 Tickets.....Mrs. E. H. Weld

SOCIAL EVENTS

Tuesday Luncheon.....Mrs. J. M. Severson
 Rockford College Tea.....Mrs. John Green
 Bridge Dinner.....Mrs. E. T. Leonard
 President's Luncheon.....Mrs. C. A. Cibelius
 Golf.....Mrs. C. A. Cibelius
 Transportation.....Mrs. R. Bosworth and
Mrs. C. H. Boswell
 Trip to Oregon and Tea at Oregon Country
 Club.....Mrs. L. Wermoltz

PROGRAM

Tuesday, May 21, 1935

9:00—Registration.
 10:00—Board Meeting, Room 803, Hotel Faust.
 12:00—Luncheon, Hotel Faust.
 Mrs. Lucius Cole, presiding.
 1:30—Business Session, Hotel Faust.
 Address of Welcome—Mrs. Joseph S.
 Lundholm, Chairman of Temporary
 Auxiliary of Rockford.
 Response—Mrs. A. H. Brumback.
 3:30—Tea on College Campus of Rockford Col-
 lege followed by Informal Program of
 Rockford College Students.
 7:00—Bridge Dinner—Forest Hills Country
 Club.
 Mrs. Lucius Cole, presiding.
 Address—Dr. C. S. Skaggs, President,
 Illinois State Medical Society.

Wednesday, May 22, 1935

8:00—Breakfast—Parlor A. Hotel Faust.
 Rockford Temporary Auxiliary Hostesses
 to Chicago Board Members.
 9:30—Business Session—Main Dining Room,
 Hotel Faust.
 12:00—President's Luncheon—Rockford Coun-
 try Club. Mrs. Lucius Cole, presiding.
 Address—Dr. C. B. Reed, President-elect
 of the Illinois State Medical Society.
 Introduction of the Incoming President,
 Mrs. W. D. Chapman, and of the newly
 elected officers of the Illinois State
 Board, Woman's Auxiliary.
 2:00—Golf—Rockford Country Club.
 2:00—County President's Conference with Mrs.
 Chapman.
 2:30—Drive down Rock River road to Oregon
 with tea at Oregon Country Club.

7:00—President's Dinner and Dance—Ball
 Room of the Hotel Faust.

Thursday, May 23, 1935

9:00—Post-Convention Board Meeting, Room
 803. Mrs. Chapman presiding.

SOCIAL FUNCTIONS

TUESDAY

12:00—Luncheon—Hotel Faust.
 3:30—Tea on Rockford College Campus.
 7:00—Bridge Dinner—Forest Hills Country
 Club.

WEDNESDAY

8:00—Breakfast—Hotel Faust.
 12:00—Luncheon—Rockford Country Club.
 2:00—Golf—Rockford Country Club.
 2:30—Drive down Rock River road to Oregon.
 7:00—President's Dinner and Dance.

HEALTH INSURANCE

The unemployed, still numbering close to ten mil-
 lions, would be unaffected by compulsory health insur-
 ance. The small wage-earner would, 90 per cent of
 the time, have to expend more, in direct contributions
 and indirect taxation, than at present. For this he
 would not receive anything better in the way of medical
 care than he gets now.

The profession is fully alive to the need for a re-
 distribution of medical services so that all the people
 may receive all the benefits of modern medicine, re-
 gardless of economic status. In a number of cities, with
 municipal cooperation, it has instituted programs that
 have given far more satisfaction to all concerned than
 sickness insurance. Like the sales levy, compulsory
 health insurance is an attempt to broaden the basis of
 taxation by making the lower classes pay more.—
 Medical Society of the County of New York.

DEBTS AND EXCESSIVE TAXES

The germ of the ill which affects this nation is ex-
 cessive taxes. That is beyond dispute and we do not
 know that any one has even so much as undertaken to
 successfully refute it, although there are many, of
 course, who seek to present other ideas, in order to
 distract our attention. Not only must the cost of con-
 ducting government be reduced to something like a
 fair figure, but the indebtedness piled upon the people
 because of money borrowed by counties, cities, states
 and federal government, must be reduced. If we are
 honest we cannot shift our responsibility by seeking to
 avoid the full payment of our debts. The man who
 goes into bankruptcy to punish his creditors and con-
 ceals a large part of his assets, if discovered, is severely
 punished. Then, should any government, whether a
 school district, county, city, state or federal, do it?—
 Committee on American Education.

ILLINOIS STATE MEDICAL SOCIETY EIGHTY-FIFTH ANNUAL MEETING

ROCKFORD, ILLINOIS

May 21, 22, 23, 1935

GENERAL SESSIONS

Tuesday Afternoon, May 21, 1935

- 1:00—Eighty-fifth Annual Meeting officially opened by the President.
1. Invocation.
 2. Address of Welcome—Mayor of Rockford.
 3. Address of Welcome—Joseph S. Lundholm, M. D., President, Winnebago County Medical Society, Rockford.
 4. Report of Chairman, Committee on Arrangements—T. H. Culhane, M. D., Rockford.
 5. Adjournment for Oration in Medicine.
- 1:30—Oration in Medicine.—James S. McLester, President-elect, American Medical Association, Birmingham, Alabama. (By invitation.)

Wednesday Morning, May 22, 1935

- 11:00—Oration in Surgery—"The Role of Surgery in the Disturbances of the Thyroid Gland."—Martin Nordland, Minneapolis, Minnesota. (By invitation.)

Wednesday Afternoon, May 22, 1935

- 1:30—President's Address—Charles S. Skaggs, President, Illinois State Medical Society, East St. Louis.

Thursday Morning, May 23, 1935

Induction of the President-elect.

Immediately following the close of the last meeting of the House of Delegates, Dr. Charles B. Reed will be inducted into the office of President by the retiring President.

All members and guests are invited to be present at the induction of the President-elect.

SECTION PROGRAMS

SECTION OF MEDICINE

Don C. Sutton.....Chairman
George ParkerSecretary

Tuesday Afternoon, May 21, 1935

Joint Session with Section on Public Health and Hygiene.

SYMPOSIUM ON OBSCURE FEVERS

- 2:45—"Symptoms and Diagnosis."—James G. Carr, Chicago.
- 3:15—"Epidemiology."—G. Koehler, Springfield.
- 3:45—"Laboratory Aids in the Diagnosis of Fevers of Obscure Origin."—Mr. H. E. McDaniels, Chicago.

In the diagnosis of obscure fevers of infectious origin, valuable evidence is often obtained from laboratory tests. This paper discusses the available bacteriological and serological procedures for the detection of the infectious agents most frequently involved in such fevers. Consideration is given to the interpretation and diagnostic importance of various laboratory findings. The subject is treated from the point of view of a public health laboratory and the tests offered by such a laboratory.

Discussion opened by Cecil Jack, Decatur.

- 4:15—"Treatment."—Clarence H. Boswell, Rockford.
- 5:00—Discussion.

Wednesday Morning, May 22, 1935

- 8:30—"Herpes Zoster."—F. G. Norbury, Jacksonville.
- 8:50—"Backache: A Discussion of Low Back Pain in Women."—Samuel J. Lang, Evanston.
- 9:10—"The Importance of Interdermic Reactions as an Aid to Diagnosis and Degree of Susceptibility to Disease."—C. A. Earle, Des Plaines.
- 9:30—"Paroxysmal Dyspnea."—Diagnosis and Treatment.—Leon Unger, Chicago.
- 9:50—"Congenital Dysfunction of the Salivary Glands, with Observations on the Physiology of Thirst."—V. Thomas Austin, and F. R. Steggerda, Champaign.
- 10:10—"The Complications of Diabetes Mellitus."—C. J. McMullan, Chicago.
- 10:40—"Diet in Diseases of the Skin."—Friederick Rehm Schmidt.

Wednesday Afternoon, May 22, 1935

- 2:30—Chairman's Address.—Don C. Sutton, Chicago.
- 2:50—"Analysis of Treatment of 101 Cases of Lung Abscess."—Harold C. Leuth, Evanston.

- 3:10—"A Clinical View of Bone Marrow Depression."—E. M. Stevenson, Bloomington.
- 3:30—"Spinal Epidural Abscess, with Presentation of Two Cases."—Dean Stanley, Decatur.
- 3:50—"Leucopenic Index in Intractable Asthma."—Michael Zeller, Chicago.
- 4:10—"Treatment of the Neuroses."—Samuel H. Kraines, Chicago.
- 4:30—"Treatment of Tertiary Lesions of Syphilis."—B. Barker Beeson, Chicago.
- 4:50—"Stumbling Blocks in Infant Care."—Scott J. Wilkinson, Decatur.

Thursday Morning, May 23, 1935

Joint Session with Sections on Surgery, Eye, Ear, Nose and Throat, and Radiology.

8:30-12:30

1. "Diseases of the Colon as a Source of Abdominal Pain."—L. C. Gatewood, Chicago.
2. "Roentgenology of the Alimentary Tract."—Maximilian J. Hubeny, Chicago.

Roentgenology of the alimentary tract is indispensable; the tract is about thirty feet long and has many anatomic and physiologic divisions and many accessory organs such as teeth, salivary glands, liver and pancreas. Many reflex symptoms may exist, consequently it is often desirable to make a comprehensive examination. No examination is complete without a combined fluoroscopic and film examination. There is a great tendency to cut down on the number of films, this is a great mistake, because certain findings are not fluoroscopically conclusive. These examinations are time consuming and frequently a re-examination is necessary. From the economic viewpoint these examinations involve quite an over-head and under the present day conditions considerable indifferent examinations are performed wilfully, with the object of reducing the over-head with the consequences that the highest traditions of medicine are destroyed because of inadequate service. It therefore, is quite necessary that the profession senses these trends.

Discussion opened by Benjamin H. Huggins, Evanston; and Lawrence Mayers, Chicago.

3. "The General Principles of Intestinal Surgery."—George De Tarnowsky, Chicago.

A practical knowledge of the development of the intestinal tract and of its physiologic functions is considered a pre-requisite to intelligent handling of its surgical problems.

The significance of intestinal distention, hyperperistalsis and a-peristalsis and their clinical interpretation are considered.

The importance of observation, palpation, percussion and auscultation in making a differential diagnosis is stressed.

The theories of intestinal toxemia and their probable nature are reviewed. The higher the level of obstruction, the stronger the factor of toxemia.

Causes of circulatory and respiratory failure and death in intestinal obstruction—Anhydremia, Dechlorination, Alkalosis, rise of blood-urea and non-protein-nitrogen are evaluated.

The Barium enema and x-ray as a diagnostic aid; its value, limitations and dangers.

Emphasis on early decompression in intestinal obstruction; operative and non-operative procedures.

General principles of treatment; lowering mortality by two-step operative procedures; exceptions. Importance of individualization in selecting the type of surgical procedure.

Summary and conclusions.

4. "The Hygiene of Reading."—James E. Lebensohn, Chicago.

Two considerations are involved in the hygiene of reading—avoidance of any deleterious influence on eyesight, and maintenance of the highest reading efficiency. The latter requires not only that the eye as an optical organ should function perfectly, but that external factors—illumination, size, contrast, and period of exposure—have optimal values, and that centrally the cerebral processes involved be developed and trained. An analysis is made of the physiology of reading, and of the medical, physical and psychological factors that make reading difficult.

Discussion opened by George J. Mehr, Chicago.

5. "Conservation of Hearing."—Frank Novak, Jr., Chicago.

SECTION ON SURGERY

J. W. Hermetet.....Chairman
John A. Wolfer.....Secretary

Tuesday Afternoon, May 21, 1935

Joint Session with Section on Radiology.

- 2:30—"Radiological Differentiations of Bone Tumors and Bone Infections."—E. L. Jenkinson, Chicago.

Dealing with the radiologic and pathologic aspect of bone tumors showing the differential points between the benign and malignant by a series of lantern slides.

- 2:50—"The Surgery of Bone Tumors."—Dallas B. Phemister, Chicago.

- 3:10—"Ewing Tumor."—Gideon Hoffman, Kewanee.

- 3:30—"Report of a Case of Bone Tumor."—

Henry W. Grote, Bloomington.

Discussion of the etiology with reference to the histological processes following trauma resulting in reduction of density—cellular activity causing local growth and loss of lime salts. Response to Roentgen Therapy in this particular case and end results—General consideration.

Discussion opened by Fred H. Decker, Peoria; and Beveridge Moore, Chicago.

3:50—"Radiological Study of Spinal Injuries."
—Roswell T. Pettit, Ottawa.

The paper deals with the investigation of fractures of the transverse processes of the lumbar vertebra due to muscular exertion.

4:10—"The Surgical Management of Spinal Injuries."—Sidney H. Easton, Peoria.

4:30—"Roentgen Aspects of Spinal Injuries, With Some Case Reports."—James T. Case, Chicago.

The interpretation of spinal injuries is sometime difficult and often of great importance, not only for the recognition of the injury and its management, but also from the medico-legal standpoint. Anomalies must be appreciated and borne in mind in connection with the interpretation of spinal roentgenograms. Special technic is necessary for certain segments of the spine.

Discussion opened by E. L. Jenkinson, Chicago.

4:50—"Case Report on Spinal Injuries."—Emil Hauser, Chicago.

Discussion opened by Fremont Chandler, Chicago; and E. L. Jenkinson, Chicago.

Wednesday Morning, May 22, 1935

8:30—"Gastric Obstruction Following Cholecystectomy."—Clifford U. Collins, Peoria.

9:00—"Hepatic Changes in Thyrotoxicosis."—J. M. Mora, Chicago.

Interesting evidence has accumulated to demonstrate that hepatic changes appear to be an integral part of the syndrom of thyrotoxicosis. This can be demonstrated clinically by the occurrence of icterus; physiologically, by the increasing evidence of altered hepatic function; experimentally, by the evidence of hepatic dysfunction following administration of thyroid substance and thyroxin; and morphologically by structural changes in the liver, varying in the acute stages from widespread degenerative, fatty and necrotizing processes to the chronic lesion in which the changes are interlobular, irregularly distributed, involving the peripheral portions of the lobule and showing relatively more fibrosis and lymphocytic infiltration than bile duct proliferation. To this lesion the term chronic patchy parenchymatous interlobular hepatitis has been applied.

Discussion opened by Arnold Jackson, Madison, Wisconsin.

9:30—"The Poor Gallbladder Risk."—Edward S. Murphy, Dixon.

Discussion opened by —

10:00—"Multiple Liver Abscesses."—R. A. Tearnan, Decatur.

When one considers that Liver Abscesses are more or less common, it is very essential that we know something of the pathology of these cases. Especially is this so with a surgeon, as most Liver Abscesses require surgical intervention. Liver Abscesses may be present with little or no symptoms and when the etiology is obscure the diagnosis is sometimes very difficult. It is with this idea in mind that I wish to present two cases of Multiple Liver Abscesses. Both cases present vague or indefinite symptoms and in which the etiology could not be determined.

Discussion opened by—

10:30—"Operative Technique for Cryptorchidism, Unilateral and Bilateral."—With Motion Picture Demonstration.—Charles M. McKenna, Chicago.

A short review of the literature. The importance of the subject being divided into two parts, namely: The Operative Technique and the Embryology and the Physiology, with particular attention on Fertility and Sterility, as it relates to the Testicle. The Thermodynamic Value of the Scrotum, with case reports.

Discussion opened by J. E. Bellas, Peoria.

Wednesday Afternoon, May 22, 1935

2:30—"The Present Status of the Surgery of the Sympathetic Nervous System."—G. de Takats, Chicago.

Evolution of the surgery of the sympathetics. Brief review of the surgical anatomy of the sympathetics, particularly in regard to surgical approach. Surgical physiology of the sympathetics, particularly immediate and late effects of transection on vascular tonus, sweating, gastric and intestinal motility and secretion, on visceral pain, on muscle metabolism. Indications and contraindications for section of the cervical, dorsal, lumbar and presacral sympathetic chain. Effects of splanchnic section on diabetes, hypertension and visceral pain. Summary of illustrative case reports. Outlook for future progress.

Discussion opened by S. E. Munson, Springfield.

3:00—"Acute Mesenteric Lymphadenitis."—E. P. Coleman, Canton.

Acute Mesenteric Lymphadenitis is more frequent than is commonly believed. It is one of the common causes of abdominal pain in children and is frequently overlooked, even at the time of operation. A review of a number of personal cases indicates that it is a condi-

tion which should be considered in all cases of abdominal pain in children and young adults, but it seems there is no exact method of diagnosis at the present time. As the most common condition resembling it is appendicitis the conclusions of the author are that in any doubtful case, the possibility of a Lymphadenitis being present should not influence the doctor against appendectomy. That at the time of doing an appendectomy, these glands should be looked for in order to furnish aid as to the prognosis of the case and to influence the accuracy of abdominal diagnosis.

Discussion opened by ———.

3:30—"Visceroptosis — Glenard's Disease."—
J. C. Thomas Rogers, Urbana.

Visceroptosis (splanchnoptosis, Glenard's disease) is defined and described in a general way. The conditions of hepatoptosis and coloptosis are discussed in greater detail. The feature of the paper lies in the case report (with lantern slides) of the fixation of the mid-portion of an elongated transverse colon between the dome of the diaphragm and a markedly ptotic liver. An especially satisfactory result followed the operative repair, the technique of which is demonstrated.

Discussion opened by E. M. Miller, Chicago.

4:00—"What Shall We Do With the Unhealthy
Cervix?"—George H. Gardner, Chicago.

All of us who examine women are continuously confronted with lesions of the cervix, some causing no symptoms, others definitely responsible for a leucorrheal discharge, and still a third group in women who are bleeding.

Much is being written these days about the advisability of regular pelvic examinations for women who have had children or have had operations on the cervix. These examinations, theoretically, will reveal many cancers of the cervix in an early stage when they are amenable to treatment. The Schiller iodine test and the colposcope are helpful adjuncts in the gynecologists' diagnostic procedures. A careful history plus accurate examination will permit one in most instances to make an accurate diagnosis without resorting to biopsy. Frequent excision of tissue for diagnosis is not to be recommended. Many cervixes can be greatly improved by cautery treatments, others should be amputated and some need only be kept under observation.

Discussion opened by George Harvey, Springfield.

4:30—"Congenital Absence of Tube and
Ovary."—Paul White, Kewanee.

Discussion opened by —.

5:00—"Surgical Treatment of the Female
Urethra."—Leander W. Riba, Chicago.

Because of the change in the construction of urological instruments in the past few years, many lesions of the posterior urethra in the male and female have been found and described by many authors. Straight urethral instruments are necessary for their proper

diagnosis and treatment. In this paper a resume of the surgical treatment is attempted, illustrating the ease with which some of these lesions may be corrected. Such lesions as: small meatus, cysts, infected pockets, polyps, granulations, strictures, and urethral diverticula. The indications for electro-resection of the female bladder neck are also discussed and illustrated.

Discussion opened by Henry R. Searle, Rockford.

Thursday Morning, May 23, 1935

Joint Session with Sections on Medicine, Eye,
Ear, Nose and Throat, and Radiology.

8:30-12:30

1. "Diseases of the Colon as a Source of
Abdominal Pain."—L. C. Gatewood,
Chicago.
2. "Roentgenology of the Alimentary
Tract."—Maximilian J. Hubeny, Chi-
cago.

Roentgenology of the alimentary tract is indispensable; the tract is about thirty feet long and has many anatomic and physiologic divisions and many accessory organs such as teeth, salivary glands, liver and pancreas. Many reflex symptoms may exist, consequently it is often desirable to make a comprehensive examination. No examination is complete without a combined fluoroscopic and film examination. There is a great tendency to cut down on the number of films, this is a great mistake, because certain findings are not fluoroscopically conclusive. These examinations are time consuming and frequently a re-examination is necessary. From the economic viewpoint these examinations involve quite an over-head and under the present day conditions considerable indifferent examinations are performed wilfully, with the object of reducing the over-head with the consequences that the highest traditions of medicine are destroyed because of inadequate service. It, therefore, is quite necessary that the profession senses these trends.

Discussion opened by Benjamin H. Huggins,
Evanston; and Lawrence Mayers, Chicago.

3. "The General Principles of Intestinal
Surgery."—George De Tarnowsky, Chi-
cago.

A practical knowledge of the development of the intestinal tract and of its physiologic functions is considered a pre-requisite to intelligent handling of its surgical problems.

The significance of intestinal distention, hyperperistalsis and a-peristalsis and their clinical interpretation are considered.

The importance of observation, palpation, percussion and auscultation in making a differential diagnosis is stressed.

The theories of intestinal toxemia and their prob-

able nature are reviewed. The higher the level of obstruction, the stronger the factor of toxemia.

Causes of circulatory and respiratory failure and death in intestinal obstruction—Anhydremia, Dechlorination, Alkalosis, rise of blood-urea and non-protein-nitrogen are evaluated.

The Barium enema and x-ray as a diagnostic aid; its value, limitations and dangers.

Emphasis on early decompression in intestinal obstruction; operative and non-operative procedures.

General principles of treatment; lowering mortality by two-step operative procedures; exceptions. Importance of individualization in selecting the type of surgical procedure.

Summary and conclusions.

4. "The Hygiene of Reading."—James E. Lebensohn, Chicago.

Two considerations are involved in the hygiene of reading—avoidance of any deleterious influence on eyesight, and maintenance of the highest reading efficiency. The latter requires not only that the eye as an optical organ should function perfectly, but that external factors—illumination, size, contrast, and period of exposure—have optimal values, and that centrally the cerebral processes involved be developed and trained. An analysis is made of the physiology of reading, and of the medical, physical and psychological factors that make reading difficult.

Discussion opened by George J. Mehr, Chicago.

5. "Conservation of Hearing."—Frank Novak, Jr., Chicago.

SECTION ON EYE, EAR, NOSE AND THROAT

Oscar B. Nugent.....Chairman
Watson W. Gailey.....Secretary

Tuesday Afternoon, May 21, 1935

SYMPOSIUM ON CATARACT

- 2:30—Introductory Remarks.—Oscar B. Nugent, Chicago.
- 2:45—"What the Slit Lamp Tells Us."—Robert Von Der Heydt, Chicago.
- 3:00—"Preparation For Operation and Anesthesia."—Walter Stevenson, Quincy.
- 3:15—"Incision, Iridotomy, Iridectomy."—Frank Brodrick, Sterling.
- 3:30—"The Barraquer and Smith Technic of Lens Extraction."—W. A. Fisher, Chicago.
- 3:45—"The Elschmig Technic of Lens Extraction."—Harry Gradle, Chicago.
- 4:00—"Extracapsular Extraction of Lens."—Harry Woodruff, Joliet.

- 4:15—"Prevention and Treatment of Complications in Cataract Operations."—Sanford Gifford, Chicago.

- 4:30—Phacogenetica Endophthalmitis."—Beulah Cushman, Chicago.
One-half hour open for general discussion.

- 6:30-8:30—Section Banquet (informal).
Miss Audrey Hayden will speak on "The Seeing Eye." Her talk will be illustrated by moving pictures.

Wednesday Morning, May 22, 1935

- 9:00—"Selective Treatment of Malignancy About the Head and Neck."—T. C. Galloway, Evanston.

Cancer about the head is not to be treated by any invariable method but for each type, grade and location there is a best treatment. An attempt is made to define the criteria for selecting that treatment.

Teamwork is required between the clinician, radiotherapist and pathologist for the best results. The advantages and disadvantages are discussed of surgery, electrosurgery, x-ray and radium and the special indication for each.

Factors that influence radiosensitivity are given. The value of histological examination in determining radiosensitivity is weighed in relation to selection of treatment. Also are discussed the clinical appearance, course, and location as determining this selection. The complementary use of all measures for cure is emphasized.

The treatment for various regions is outlined, including the skin, nose, sinuses, mouth, tongue, tonsil, pharynx and larynx.

Discussion opened by A. James Larkin and James T. Case, Chicago.

- 9:20—"Tracheotomy—Indications, Technic and Post-operative Management."—Roland D. Russell, Chicago.

Tracheotomy should not be too lightly undertaken or too long delayed. The indications are: Spasmodic forms of stenosis; impacted foreign body; laryngeal edema; diphtheria because of edema or membrane in the inflammatory stage, or cicatrices, or paralysis later; typhoid perichondritis or cicatrices; syphilis; tuberculosis, hypertrophies or hyperplasias in or about the larynx; neoplasma; bilateral laryngeal paralysis; cicatricial stenosis due to high tracheotomy or laryngotomy.

Low tracheotomy is the operation of choice because there is less hemorrhage, the tracheal fistula is further from the site of the lesion, the trachea is wider below, and there is less danger of cicatricial stenosis as a sequel to operation; and low tracheotomy is less conspicuous.

Morphine is contraindicated for the preoperative preparation. The operation is done under local anesthesia.

The writer advocates a low horizontal incision through the skin and fascia down to the muscles, then blunt dissection to the trachea which is incised vertically low down. A minimum of dissection is done to reach the trachea. The advantages of the method are: Very little space is opened for infection, the wound usually heals by primary union, very little bleeding is caused, and method can be used in practically all cases.

A special nurse or trained attendant constantly present is essential. A suction machine equipped with catheters should be ready at the bedside for instant use in aspirating tracheal secretions. The inner tube should be frequently and thoroughly cleaned.

Discussion opened by John Delph, Chicago.

9:40—"Management of Myopia in Children."

—G. Henry Mundt, Chicago.

The importance of determination of vision in the children of myopic parents. The importance of frequent refractions, constant wearing of lenses, restriction of use of eyes for close work.

Discussion opened by Joseph F. Duane, Peoria.

10:00—"Tonsillectomy in Pulmonary Tuberculosis."—Stuart Broadwell, Springfield.

A resume of one hundred operations on tubercular patients. A few contra-indications to this operation are outlined.

10:20—"The Favorable Effect of Local Quinine Therapy on Some Diseases of the Conjunctiva and Cornea."—Elias Selinger, Chicago.

Besides its local action as a bactericide, astringent and mild anesthetic, quinine penetrates deeply into the tissues and, because of its depressing effect on the nutrition of the protoplasm, destroys cellular elements. This last property explains the favorable action of quinine in the treatment of trachoma, interstitial keratitis and other conditions characterized by the infiltration of cellular elements into the cornea and conjunctiva. Favorable results have also been obtained in old corneal opacities, probably as a result of the absorption of some of the elements making up the corneal scars.

Discussion opened by Sanford Gifford, Chicago.

10:40—"Influence of Ionization on Vasomotor Rhinitis; Clinical and Experimental Studies."—A. R. Hollender; Meyer Gorin, Chicago.

What is ionization? Physical principles, physiological and clinical effects. Apparatus; technic and its simplification. Histo-pathological studies. Further data on laboratory and experimental investigation. Conclusions based on more than ten years' experience with intranasal ionization in various nasal affections.

Discussion opened by Frances L. Lederer,

Chicago; Hanby L. Ford, Champaign.

11:00—"Bronchoscopy in Lung Disease."—Charles D. Sneller, Peoria.

The value of the bronchoscopic removal of foreign bodies from the bronchi is fairly well recognized by general practitioners and internists, particularly in the larger cities of the state. On the other hand, the value of bronchoscopy as an aid in the diagnosis of lung disease and its value in treatment, have barely been recognized. It is our duty as laryngologists to incite the closer cooperation of the general practitioner, internist and roentgenologist in the value of this special procedure in not only foreign body cases but especially in diagnosis and treatment of lung diseases.

Discussion opened by Harold Watkins, Bloomington.

11:20—"Chronic Glaucoma."—Charles F. Yenger, Chicago.

The insidious onset of simple glaucoma is the cause of many of these cases not being recognized until it is too late to do much if any good, therefore a plea for an early diagnosis and the institution of the proper treatment is made.

Discussion opened by Michael Goldenburg, Chicago.

11:40—"Further Report on the Treatment of Strabismus with Orthoptic Exercises. A Resume of Nearly Three Hundred Cases. Conclusions."—Jacob L. Bressler, Chicago.

An analysis of the work accomplished in the orthoptic clinic at the Illinois Eye and Ear Infirmary since its inception one and a half years ago. A working routine is described with details of the methods employed at our clinic. Other methods of orthoptic treatment are included with a discussion of their advantages and disadvantages.

Discussion opened by Leo L. Mayer, Chicago.

Wednesday Afternoon, May 22, 1935

2:30—"Surgical Management of Glaucoma."—Samuel Meyer, Chicago.

The surgery of glaucoma divides itself into three types of operations, namely:

1. The classical iridectomy or Von Graefe Operation.

In this type of operation the endeavor is made to restore, so far as is possible, the normal channels of drainage of the aqueous. In other words, an effort is made to open up the chamber-angle, and allow the aqueous to filter out.

2. Cyclo-dialysis.

This type of operation opens up new intra-ocular sources of drainage.

3. The Elliot Trephine, LaGrange Iridosclerotomy and Iridencleisis.

The foregoing methods provide extra-ocular sources of drainage, namely, by the maintenance of a fistula in the conjunctiva.

There is no one operation that will fit any and all cases. The majority of bad results that are reported are due to the fact that the surgeon is endeavoring to solve all glaucoma problems with one type of operation.

Discussion opened by Harry Gradle, Chicago.

2:50—"Medical Adjuvants in the Management of Glaucoma."—James E. Lebensohn, Chicago.

Proper medical management in glaucoma not only may assure us a more uneventful operative recovery in those cases where surgery is indicated, but not infrequently is our sole resource in patients we may not, dare not, or can not operate. In the pre-operative preparation of acute glaucoma, morphine, dehydration, and miotics are imperatively indicated. Adrenalin therapy is of value in chronic simple glaucoma only, and absolutely contraindicated for all other forms. In iritis glaucomatosa, the tension is most safely lowered by the maintenance of dehydration, and the continued use of atropin and injections of foreign protein. Chronic uveitis with hypertension is a special problem. In absolute glaucoma, enucleation or optico-ciliary neurectomy is recommended but alcohol injection is at our disposal for non-operable cases.

Discussion opened by Harry W. Woodruff, Joliet.

3:10—"A Survey of the Present Status of Electro-Coagulation of Tonsils."—Louis Savitt, Chicago.

The author defines and indicates the various types of currents employed in electro coagulation, so as to avoid confusion in the minds of those contemplating the adoption and addition of this technic to their armamentarium.

A comprehensive and detailed review of the current literature is included in this presentation along with a composite view of the opinions of those oto-laryngologists who have, after due consideration and earnest, conscientious trial, either accepted or rejected this technic as now universally used.

Included in this paper is the author's own personal experience of six years, during which time his cases have been periodically observed, so as to tabulate his end results and presenting his own conclusions.

Discussion opened by George T. Jordan, Chicago.

3:30—"Cause for Removal of the Eye."—Leo L. Mayer, Chicago.

During the year from July, 1933, to July 1, 1934, approximately 150 eyes were removed at the Illinois Eye and Ear Infirmary in Chicago. The primary and secondary causes of necessity for removal are analyzed. Anophthalmos often is a precursor of complete blind-

ness. An attempt is made to correlate such incidence with the causes for complete blindness. A relative estimate of prognosis in injury, glaucoma and operations on the eye is made available by this study. Pathological study of the removed globes is used as a checkup of original and secondary diagnosis.

Discussion opened by Edw. C. Spitze, East St. Louis; Georgiana Theobald, Oak Park.
3:50—"Radiathermy (Ultra Short Wave Diathermy) in Acute Suppurative and Non-suppurative Infections About the Head and Neck."—M. H. Cottle, Chicago.

This work from the department of Physical Therapy and with the cooperation of Ear, Nose & Throat Department, Cook County Hospital, Chicago.

Brief presentation of the physiological and biological effects of this form of therapy; differentiation from other forms of Diathermy; comparison with x-ray.

Summary of case reports illustrated by lantern slides.
Technic of application—Contraindications—and Limitations.

Discussion opened by Disraeli Kobak, Chicago; Thomas Galloway, Evanston.

4:10—"Operative Management of Ozena."—S. M. Morwitz, Chicago.

A—Types of Clinical Atrophic Rhinitis:

1. Primary with Ozena.
2. Secondary to sinusitis.

B—Ozena Cases Analogous to Otosclerosis:

1. Affects young adults, especially the female.
2. Become social outcasts.
3. Have associated psychogenic problems, Ozena cases particularly on account of Malodor.

C—Principles Underlying Surgical Procedures:

1. Relevant etiologic and pathologic factors.
2. Ozena never seen in narrow nose, only in wide nasal chambers.
3. Degree of Ozena is in direct ratio to degree in width of nasal cavities.

D—Survey of Conservative Surgical Measures Employed:

1. Currettement of entire nasal chamber.
2. Blockage and extirpation of sphenopalatine ganglion.
3. Periarterial sympathectomy on large vessels of neck.
4. Removal of turbinates.
5. Intranasal obturators and sponges.
6. Implantation of autoplasmic and hetero-plastic substances.
7. Ionization.
8. Radium and X-ray.

E—Recent Radical Operative Technic:

1. Lantenschlagers.
 2. Halles.
- Wachsberger's Modification.

- (a) Adopted by the writer in a series of cases at the University of Illinois Research Hospital.
- (b) Detailed description of operation; lantern slides.

F—Summary on Value of This Type of Surgical Therapy.

Discussion opened by H. L. Pollock, Chicago.

Thursday Morning, May 23, 1935

Joint Session with Sections on Medicine, Surgery, and Radiology.

8:30-12:30

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2. "Roentgenology of the Alimentary Tract."—Maximilian J. Hubeny, Chicago.

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3. "The General Principles of Intestinal Surgery."—George De Tarnowsky, Chicago.

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Summary and conclusions.

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Discussion opened by George J. Mehr, Chicago.

5. "Conservation of Hearing."—Frank Novak, Jr., Chicago.

SECTION OF PUBLIC HEALTH AND HYGIENE

Lloyd ArnoldChairman
W. M. Talbert.....Secretary

Tuesday Afternoon, May 21, 1935

Joint Session with Section on Medicine.

SYMPOSIUM ON OBSCURE FEVERS

- 2:45—"Symptoms and Diagnosis."—James G. Carr, Chicago.
- 3:15—"Epidemiology."—G. Koehler, Springfield.
- 3:45—"Laboratory Aids in the Diagnosis of Fevers of Obscure Origin."—Mr. H. E. McDaniels, Chicago.

In the diagnosis of obscure fevers of infectious origin, valuable evidence is often obtained from laboratory tests. This paper discusses the available bacteriological and serological procedures for the detection of the infectious agents most frequently involved in such fevers. Consideration is given to the interpretation and diagnostic importance of various laboratory findings. The subject is treated from the point of view of a public health laboratory and the tests offered by such a laboratory.

Discussion opened by Cecil Jack, Decatur.

- 4:15—"Treatment."—Clarence H. Boswell, Rockford.
- 5:00—Discussion.

Wednesday Morning, May 22, 1935

9:00—"The Bacillus of Calmette and Guerin (B. C. G.) in the Immunization Against Tuberculosis."—Sol Roy Rosenthal, Chicago.

A brief history of the bacillus of Calmette and Guerin (B.C.G.), beginning with its first isolation in 1908 and its artificial cultivation through some 500 passages is presented. The avirulence and accompanying immunity is traced through the ordinary laboratory animals—cows—monkeys and chimpanzees. Finally, the harmlessness and protective properties against tuberculosis in well over one million infants throughout the world is emphasized. From the literature and from the author's own work, evidence is given to show that the present strain of B.C.G. cannot be dissociated; that a transient variation in the cultural morphology does occur but the latter is non-virulent for guinea pigs and rabbits; that a positive tuberculin test does result in all animals vaccinated by the subcutaneous route and that in over 200 animals studied there was no evidence of a progressive tuberculosis.

Discussion opened by Lloyd Arnold, Chicago.

9:25—"The School Teacher as a Source of Tuberculosis Infection—Report of an X-ray Study."—D. O. N. Lindberg, Decatur.

An x-ray film study was made of the school teachers, Macon County, Illinois. Six hundred eighty-seven (687) were filmed, of which 6, or 0.9% were found to be actively tuberculous. The findings, of course, indicate that the school teacher has no more tuberculosis than the average adult. Her infection menace to the school child rests upon the fact that, next only to the family, she provides greatest opportunity for close, prolonged contact. Requiring the teacher to provide a health certificate, to include chest films, would serve to remove this reservoir of infection.

Discussion opened by J. A. Myers, Minneapolis, Minnesota.

9:50—"Tubercle Bacilli on the Lips of Patients with Pulmonary Tuberculosis."—Lars Gulbrandsen and Robert Keller, Chicago.

The presence of tubercle bacilli on the lips of patients with pulmonary tuberculosis was investigated by taking swabs of the lips at 15 minute intervals over periods of two hours on each patient. Records were kept of coughing and expectoration. Each swab was immediately shaken in 5 cc. of sterile saline, and injected subcutaneously into guinea pigs. After 6 weeks, these pigs were sacrificed and examined for evidences of tuberculosis. It was found that each patient so examined had tubercle bacilli on the lips—in one instance, material taken as late as 1 hour and 40 minutes after expectoration producing tuberculosis in the animal. Examination of the nasal orifices, using the same technique, failed to demonstrate tubercle bacilli. The authors conclude that tubercle bacilli on the lips in patients

with pulmonary tuberculosis must be considered in the epidemiology of this disease.

Discussion opened by D. O. N. Lindberg, Decatur.

10:15—"Meningococcus Meningitis, Importance of Intravenous Therapy."—Archibald Hoyne, Chicago.

The paper contains a discussion of meningococcus infection for which the general term "meningococcia" is suggested. A newer classification of the disease based on clinical symptoms is presented and the significance of these symptoms in determining the method of treatment is described. Great importance is attached to intravenous administration of serum and the reasons for this mode of treatment explained. A new serum is referred to. There is a review of 233 meningococcus cases treated in the Municipal Contagious Disease Hospital. Tables illustrative of cases, deaths, and sex in various age groups are included.

Discussion opened by Joseph T. O'Neill, Ottawa.

10:40—"Passive Immunity in Infants and Their Response to Diphtheria Toxoid."—Joseph Greengard, Chicago.

Preliminary Schick tests were done on all infants and vaccination with diphtheria toxoid carried out in both the positive and negative reactors. The negative reactors, i.e., those who still retained their passive immunity, demonstrated a positive Schick test in two-thirds of the cases, the course of their passive immunity corresponding closely to that of infants who have not been vaccinated. The positive reactors, control series, turned negative and remained so in 88% of the cases. We may, therefore, conclude that passive immunity in infants interferes with the development of antitoxin in response to vaccination with diphtheria toxoid. Such vaccination, therefore, should not be done in young age groups without preliminary Schick testing.

Discussion opened by Maurice L. Blatt; I. Harrison Tumpeer, Chicago.

Wednesday Afternoon, May 22, 1935

2:30—"The Treatment of Early Syphilis."—S. J. Zakon and Maurice Dorn, Chicago.

Historical review of the evolution of the modern treatment. Abortive, chronic intermittent, intensive, irregular, and continuous methods of treatment defined and discussed. Superiority of continuous method stressed and advocated. Drugs used, their indications, limitations, and dosage. The "golden opportunity" in early syphilis. What is meant by early syphilis? How long to treat? What is adequate treatment? When should treatment cease? Values of Dark field, blood serology, spinal fluid findings in diagnosis, prognosis and guides as to cure.

Discussion opened by A. W. Stillians, Chicago.

2:55—"Modern Principles in the Treatment of

Early Syphilis."—H. J. Burstein, Decatur.

Recent statistics of results in the treatment of syphilis have proven that continuous treatment is the method of choice. These figures and outline of treatment, with a discussion of the various drugs show necessity for early adequate treatment. Diagnosis during primary seronegative stage should be constantly emphasized.

Discussion opened by Marcus R. Caro, Chicago.

3:20—"The State of Health in Illinois."—Frank J. Jirka, Springfield.

3:45—"Past, Present and Future Position of Public Health and Preventive Medicine in the Curricula of Medical Colleges."—D. J. Davis, Chicago.

4:15—"Epidemic Pleurodynia in Illinois."—Tom Kirkwood, Lawrenceville, and C. G. Stoll, Sumner.

This is the first recorded epidemic of this disease west of the Appalachian Mountains. It is an acute infectious disease, occurring in epidemics during the summer months, characterized by the sudden appearance of agonizing pain in the lower third of the anterior thoracic wall on one or both sides, and sometimes by pain in the epigastrium. There is a rapid rise in temperature and marked respiratory embarrassment. Usually all symptoms disappear within twenty-four hours, but may return after one or two days. The severe initial pain may resemble that seen in acute abdominal surgical conditions and has led to needless operations.

Discussion opened by J. J. McShane, Springfield.

4:35—"Typhoid and Mosquitoes."—J. Howard Beard and John R. Cain, Urbana.

The widespread erroneous belief that the mosquito conveys typhoid fever is symbolic of the lack of instruction in hygiene, the inadequate preparation of many teaching it, and is indicative of the fact that education has not placed sufficient emphasis on a subject essential to successful living in a highly complex civilization.

Discussion opened by Andy Hall, Mt. Vernon.

Thursday Morning, May 23, 1935

9:00—"Vital Statistics as an Indicator of Accuracy in Diagnosis."—G. Howard Gowen, Chicago.

The frequency of the reporting of unspecified sudden death, unspecified pneumonia, and unspecified peritonitis was studied for the years 1914 and 1929 for the twenty-five registration states existing in 1914. A similar study was made of Illinois for the years 1918 and 1929. The results are interpreted in terms of

accuracy of diagnosis of the cause of death. It was found that there was an average decrease in the reporting of unspecified peritonitis and unspecified pneumonia, but an increase in the reporting of unspecified sudden death.

Discussion opened by J. J. McShane, Springfield.

9:25—"Medical Evaluation of Vital Statistics of Illinois During the Ten Year Period 1925-1934."—E. A. Kominick, Chicago.

Discussion opened by Mr. B. K. Richardson, Springfield.

9:50—"Artificially Induced Malaria as a Public Health Hazard."—H. J. Shaughnessy, Springfield.

An unusual number of positive laboratory tests for malaria directed the attention of the Illinois Department of Public Health to the cause of an apparent outbreak of that disease in one of the state hospitals. Investigation revealed that a number of previously inoculated paretics that had been treated with quinine were still harboring malaria parasites. Anopheles mosquitoes were found breeding within flying distance of the hospital. The conclusion is drawn that the outbreak was possibly due to the spread of artificially induced malaria by mosquitoes. Measures for the prevention of this possibility are suggested.

Discussion opened by G. Howard Gowen, Chicago.

10:15—"Epidemic Encephalitis (St. Louis type) in Illinois during 1932, 1933 and 1934."—Winston Tucker, Springfield.

An outbreak of 27 cases of epidemic encephalitis occurred in Paris, Edgar County, in August and September, 1932, with a fatality rate of 33 per cent. From July 1 to December 31, 1933, 202 cases were reported, most of which occurred in the counties nearest St. Louis, with a fatality rate of 37 percent. During the same period in 1934, 268 cases were reported over a widely scattered area in Illinois, with a fatality rate of 20 per cent. Epidemic encephalitis is assuming increasing importance each year, and judging from past experience, physicians should be on the lookout for cases during the summer of 1935. The disease will be discussed from a clinical and Public Health viewpoint in this paper.

Discussion opened by Don C. Sutton, Chicago.

10:40—"Blood Grouping Tests in the Medical-Legal Determination of Non-paternity."—C. W. Muehlberger, Chicago.

Although European courts have accepted medical testimony regarding the inheritance of blood group characteristics for a number of years, American courts have been hesitant in admitting such tests to prove non-paternity. With the latest additions of the three agglutinin factors (M, N and MN) by Landsteiner, a falsely accused man has about one chance in three

of proving non-paternity. Decisions of various courts ruling upon the admissibility of blood grouping tests in this country are discussed. Blood grouping tests may be of value in solving medicolegal problems other than the determination of non-paternity.

Discussion opened by C. Woodward, Chicago.

SECTION ON RADIOLOGY

F. FlinnChairman
George M. Landau.....Secretary

Tuesday Afternoon, May 21, 1935

Joint Session with Section on Surgery.

2:30—"Radiological Differentiations of Bone Tumors and Bone Infections."—E. L. Jenkinson, Chicago.

Dealing with the radiologic and pathologic aspect of bone tumors showing the differential points between the benign and malignant by a series of lantern slides.

2:50—"The Surgery of Bone Tumors."—Dallas B. Phemister, Chicago.

3:10—"Ewing Tumor."—Gideon Hoffman, Kewanee.

3:30—"Report of a Case of Bone Tumor."—Henry W. Grote, Bloomington.

Discussion of the etiology with reference to the histological processes following trauma resulting in reduction of density—cellular activity causing local growth and loss of lime salts. Response to Roentgen Therapy in this particular case and end results—General consideration.

Discussion opened by Fred H. Decker, Peoria; and Beveridge Moore, Chicago.

3:50—"Radiological Study of Spinal Injuries."—Roswell T. Pettit, Ottawa,

The paper deals with the investigation of fractures of the transverse processes of the lumbar vertebra due to muscular exertion.

4:10—"The Surgical Management of Spinal Injuries."—Sidney H. Easton, Peoria.

4:30—"Roentgen Aspects of Spinal Injuries." With some Case Reports.—James T. Case, Chicago.

The interpretation of spinal injuries is sometime difficult and often of great importance, not only for the recognition of the injury and its management, but also from the medico-legal standpoint. Anomalies must be appreciated and borne in mind in connection with the interpretation of spinal roentgenograms. Special technic is necessary for certain segments of the spine.

Discussion opened by E. L. Jenkinson, Chicago.

4:50—"Case Report of Spinal Injuries."—Emil

Hauser, Chicago.

Discussion opened by Fremont Chandler, Chicago; and E. L. Jenkinson, Chicago.

Wednesday Morning, May 22, 1935

8:30—"An Experimental Study on the Pyloric Mechanism."—Cesare Gianturco, Urbana.

The author has studied the behavior of the pyloric sphincter in cats by visualizing to Roentgen Rays the gastric and duodenal walls by means of lead shot inserted under the serosa of the viscuses. When a barium meal was given it could be seen that food does not leave the stomach every time that the pylorus opens, but that a contemporaneous relaxation of both the pylorus and the duodenum is necessary.

Discussion opened by Fred H. Decker, Peoria.

9:00—"The Value of Intravenous Pyelogram as Illustrated by Some Interesting Cases."—A. E. Perley, Quincy.

A discussion of the value of intravenous pyelography, its technic and indications for its use. The slides will bear on the interpretations of these interpretations and those from retrograde pyelograms.

Discussion opened by George M. Landau, Chicago.

9:30—"Roentgen Study of Lesions of the Urinary Bladder."—Perry B. Goodwin, Peoria.

The synopsis will show evidences of the different pathological conditions in the bladder as revealed by the x-ray film. We will take up diverticuli, tumors, ruptures of the bladder and prostatic visualization; this will include the posterior urethra.

This method of visualization of the prostate will show the different sizes of the prostate and the principles by which we interpret our findings in both hypertrophies and malignancies. It will also show whether there are lateral, posterior or middle lobe involvements or whether all lobes are involved, and the manner of obtaining the information. This discussion will be illustrated with slides.

Discussion opened by H. J. Burstein, Decatur.

10:00—"Differentiation of Radio-Opaque Shadows in the Right Upper Quadrant."—Robert A. Arens, Chicago.

This paper will discuss the differential diagnosis between biliary calculi, renal calculi, calcified mesenteric glands, pigmented moles, and other extraneous shadows seen on the x-ray films, some of which at times may be difficult to differentiate without special technique.

Discussion opened by J. H. Finch, Champaign.

10:30—"The Use of Excretory Urography in Urological Diagnosis."—Norris J. Heckel, Chicago.

This paper includes a short history of the development of Excretory Urography, the major part of the discussion however is devoted to the use of this procedure not only in the diagnosis of diseases of the urinary system but also its use in the differential diagnosis between these diseases and those of adjacent structure. Comparison is made between this method and that of instrumental pyelography. The interpretation of the urogram from the standpoint of physiological alterations is discussed and about thirty-five slides illustrating various urinary tract diseases including traumatic lesions will be shown.

Discussion opened by David L. Jenkinson, Chicago.

12:00—Radiological Luncheon.

Wednesday Afternoon, May 22, 1935

2:30—"Massive Collapse."—Roe J. Maier, Chicago.

Massive collapse of the lung, or better, massive atelectasis is of very great importance because of its frequency of occurrence, its ease of treatment if recognized early and the seriousness of its sequellae. The condition is not one recently observed but described as early as 1844. It occurs post-operatively and following exposure or trauma even when the trauma is distant from the chest. It can usually be differentiated from other types of pathology involving the chest and its early and proper treatment produces rapid recovery and should result in no sequellae. Several cases are used as illustrations.

Discussion opened by F. Flinn, Decatur.

3:00—"The Roentgen Diagnosis of Intra-Cranial Lesions."—A. Hartung and T. Wachowski, Chicago.

The Roentgen examination serves a double purpose in connection with intra-cranial lesions. Firstly, to determine their presence either by demonstrable changes in the lesions themselves or secondary changes associated with them, and secondly, to localize such lesions. Both objects may be accomplished simultaneously by plain film examinations in some cases, but in many others they must be supplemented by the use of ventriculography or encephalography to obtain the required information. This paper is intended to cover the subject in a general way.

Discussion opened by Eric Oldberg, Chicago.

3:30—"Roentgenology in Pediatrics; Importance in Diagnosis of Thoracic Lesions."
—John F. Carey, Joliet.

At present roentgen examination of the thorax is quite indispensable in the study of thoracic lesions in children. However, a diagnosis should be arrived at only upon proper correlation of the history, clinical and physical findings and other laboratory data.

Many roentgenologists do not have the opportunity of examining children, so much of their work being devoted to adults. The pediatricist's problems differ

because the variation of the disease itself in the young and the difference in anatomy and clinical composition.

An attempt will be made to point out some of the common problems of diagnosis and the pitfalls when a proper correlation of clinical findings and roentgen evidence is not taken into consideration.

Discussion opened by John S. Bigler, Highland Park; Craig D. Butler, Oak Park.

4:00—"X-Rays in the Detection of Pathology in the Cervix, Corpus Uteri and Oviducts."—Benjamin H. Orndoff, Chicago.

With the aid of radio-opaque substances, it becomes possible to delineate and study the normal cervical canal and the cavity in the uterine body and oviducts.

Pathological variations of position, fixation, filling defects due to the different causes, and patency at any point can be studied in a manner unequaled by any other method.

Discussion opened by Robert A. Arens, Chicago.

4:30—"The Roentgen Treatment of Uterine Hemorrhage, Amenorrhea and Dysmenorrhea."—I. S. Trostler, Chicago.

Treatment of these gynecological conditions by Roentgen Rays is not new. Much has been accomplished since the earliest workers first reported their results. Menstrual disorders are frequently influenced by small doses of Roentgen Rays. How do these produce the results? Roentgen Rays NEVER stimulate. Always depress. Depress pain production and pituitary hormone output. Many cases relieved by irradiation of pituitary, alone.

Effects on uterine hemorrhage are three fold. Hemorrhage due to fibromyomata, how affected. Artificial menopause. Quotation from Martindale's report of 620 cases of artificial menopause. Abnormal menopause.

Summary and Conclusions. A caution regarding the administration of Roentgen therapy by lay technicians.

Discussion opened by Henry W. Grote, Bloomington.

5:00—"Art of Cancer Therapy."—E. G. C. Williams, Danville.

This is a comparison of methods and a contrast between wide destruction of tissue and sterilization of cancerous tissues, with a discussion of the points that make cancer therapy an art rather than a craft.

Discussion opened by Benjamin H. Orndoff, Chicago.

Thursday Morning, May 23, 1935

Joint Session with Sections on Medicine, Surgery, Eye, Ear, Nose and Throat.

8:30-12:30—

1. "Diseases of the Colon as a Source of Abdominal Pain."—L. C. Gatewood, Chicago.

2. "Roentgenology of the Alimentary Tract."—Maximilian J. Hubeny, Chicago.

Roentgenology of the alimentary tract is indispensable; the tract is about thirty feet long and has many anatomic and physiologic divisions and many accessory organs such as teeth, salivary glands, liver and pancreas. Many reflex symptoms may exist, consequently it is often desirable to make a comprehensive examination. No examination is complete without a combined fluoroscopic and film examination. There is a great tendency to cut down on the number of films, this is a great mistake, because certain findings are not fluoroscopically conclusive. These examinations are time consuming and frequently a re-examination is necessary. From the economic viewpoint these examinations involve quite an over-head and under the present day conditions considerable indifferent examinations are performed wilfully, with the object of reducing the over-head with the consequences that the highest traditions of medicine are destroyed because of inadequate service. It, therefore, is quite necessary that the profession senses these trends.

Discussion opened by Benjamin H. Huggins, Evanston; and Lawrence Mayers, Chicago.

3. "The General Principles of Intestinal Surgery."—George De Tarnowsky, Chicago.

A practical knowledge of the development of the intestinal tract and of its physiologic functions is considered a pre-requisite to intelligent handling of its surgical problems.

The significance of intestinal distention, hyperperistalsis and a-peristalsis and their clinical interpretation are considered.

The importance of observation, palpation, percussion and auscultation in making a differential diagnosis is stressed.

The theories of intestinal toxemia and their probable nature are reviewed. The higher the level of obstruction, the stronger the factor of toxemia.

Causes of circulatory and respiratory failure and death in intestinal obstruction—Anhydremia, Dechlorination, Alkalosis, rise of blood-urea and non-protein-nitrogen are evaluated.

The Barium enema and x-ray as a diagnostic aid; its value, limitations and dangers.

Emphasis on early decompression in intestinal obstruction; operative and non-operative procedures.

General principles of treatment; lowering mortality by two-step operative procedures; exceptions. Importance of individualization in selecting the type of surgical procedure.

Summary and conclusions.

4. "The Hygiene of Reading."—James E. Lebensohn, Chicago.

Two considerations are involved in the hygiene of reading—avoidance of any deleterious influence on eyesight, and maintenance of the highest reading effi-

ciency. The latter requires not only that the eye as an optical organ should function perfectly, but that external factors—illumination, size, contrast, and period of exposure—have optimal values, and that centrally the cerebral processes involved be developed and trained. An analysis is made of the physiology of reading, and of the medical, physical and psychological factors that make reading difficult.

Discussion opened by George J. Mehr, Chicago.

5. "Conservation of Hearing."—Frank Novak, Jr., Chicago.

EXHIBITORS AT 1935 ANNUAL MEETING

Mellin's Food Company, Boston, Massachusetts.
 Illinois Surgical Supply Company, Chicago.
 A. S. Aloe Company, St. Louis, Missouri.
 Horlick's Malted Milk Corporation, Racine, Wisconsin.
 General Electric X-Ray Corporation, Chicago.
 Cameron's Surgical Specialty Company, Chicago.
 Bard-Parker Company, Danbury, Connecticut.
 Sharp & Smith, Chicago.
 Sutliff & Case Company, Peoria.
 Chappel Brothers Laboratories, Rockford.
 V. Mueller & Company, Chicago.
 Kellogg Company, Battle Creek, Michigan.
 W. B. Saunders Company, Philadelphia, Pennsylvania.
 DePuy Manufacturing Company, Warsaw, Indiana.
 Merck & Company, Rahway, New Jersey.
 Philip Morris & Company, New York City, New York.
 Gerber Products Company, Freemont, Michigan.
 J. B. Lippincott Company, Philadelphia, Pennsylvania.
 Medical Protective Company, Wheaton.
 Hynson, Westcott & Dunning, Baltimore, Maryland.
 Bankers Mutual Life Company, Freeport.
 H. J. Heinz Company, Pittsburgh, Pennsylvania.
 Mead Johnson & Company, Evansville, Indiana.
 Universal Products Corporation, Pottstown, Pennsylvania.
 M. & R. Dietetic Laboratories, Inc., Columbus, Ohio.

NOTES OR EXHIBITS

Horlick's Malted Milk Corporation, in Booth No. 5, will explain the special uses of Horlick's Malted Milk, natural and chocolate flavors, as a food of remarkably nutritive and digestible qualities, both in sickness and in health. Samples of Horlick's Malted Milk Tablets will be distributed as a reminder of their usefulness as a pleasing variant in the liquid diet, and as a beneficial confection for children.

Sharp & Smith will have on display, in Booth No. 1, the new Charles Robert Elliott Treatment Machine, which embodies all of the newest improvements. In addition, a complete line of surgical instruments, as well as hospital supplies will be available.

Mr. Frazin will be in attendance, as will Mr. Denny. Both of them will be glad to welcome their friends.

Visitors at the Gerber Products Booth No. 22 will be shown the Gerber's Strained Cereal, Vegetables, and Prunes and given information concerning the new

shaker-cooker process which has just been announced.

Booklets and leaflets are available. Some of these are suitable for distribution by physicians and some are for professional use only.

In Booth No. 30 the A. S. Aloe Company of St. Louis will show two new items of special interest: the Aloe Radio Short Wave Diatherm and the new style Elliott Machine. Also on display in this booth will be Stille-Scanlan rustless steel instruments, featured at 25% discount. Full lines of instruments and supplies will complete the Aloe display, with descriptive matter on the new Aloe genuine walnut wood furniture suite.

In Booth No. 6 the Illinois Surgical Supply Company will display the following equipment: Latest Pneumathorax equipment; Blood Transfusion Equipment; late developments in short wave physical therapy. Possibly our new Hydraulic chair and other new operating instruments.

Look up these unusual new books at the J. B. Lipincott Company's exhibit: Booth No. 23. Pfaundler & Schlossmann, "Diseases of Children"; Peham & Amreich, "Operative Gynecology"; Kirchner & Ravdin, "Operative Surgery"; Barker, "Treatment of the Commoner Diseases"; Contributions to Surgery in Honor of Charles H. Frazier; Emerson, "The Nervous Patient"; Barborka, "Treatment by Diet"; Goldthwait, "Body Mechanics"; Sr. Gabriel's "Through the Patient's Eyes"; Moore, "Principles of Ethics."

And the new edition just issued of these well-known texts and reference books: Eisendrath & Rolnick "Urology"; Anspach, "Gynecology"; Davis & Muller, "Applied Anatomy"; Thorek, "Surgical Errors and Safeguards"; Rehberger, "Quick Reference Book of Medicine and Surgery"; International Clinics, plus the Pittsburgh Diagnostic Clinic Home Post-Graduate Plan; Annals of Surgery.

All these books are unusually and beautifully illustrated, with the exception of Barker and must be seen to be appreciated. You will be welcome at the Booth and will not be importuned to buy.

The Cameron Surgical Specialty Company, Booth No. 3, is showing the very latest developments in electrically lighted diagnostic instruments.

Surgimold is the name of the new material now replacing metal. See it and you will know why we changed from the regulation metallic type.

Our representative will also explain how it is possible for you to exchange your present Cameron instruments for late models.

Ask to see the Tele-Vaginalite (Micro-Colposcope) now so widely used in the vagina for revealing leucoplakias in their incipency and insuring an early and accurate diagnosis of cervical malignancies.

Other new and interesting items are the new full vision, proximally lighted Bronchoscope and 5-in-1 Surgimold Ophthalmoscope. The Cameron Cauterodyne in a new and inexpensive model for cutting and coagu-

lating in office and ambulatory surgery is being shown for the first time.

H. J. Heinz Company, Creators of the Famous 57 Varieties of Pure Foods, displaying Strained Foods, Tomato Juice and Breakfast Cereals especially suited to Infant Feeding and diet therapy.

Do not fail to register at Booth No. 27, for the Heinz Nutritional Charts, a set of reference charts invaluable to the doctor in diet planning.

Doctors visit the Kellogg Booth No. 13! The actual amount of iron and other minerals present in Kellogg's All-Bran is shown in an interesting display arranged in the Kellogg Booth. Reprints of recent articles in the Journal of Biological Chemistry, covering experimental work with bran at Columbia University, are available. Also reprints of reports on sleep experiments at Colgate University. Kellogg's Kaffee Hag Coffee (97% caffeine free) is being served at the booth. Visiting physicians will find the display of caffeine of interest.

General Electric X-Ray Corporation, Booth No. 4. The visiting physician will see the smallest, practical x-ray unit ever designed for office and portable work. The unit weighs only 30 pounds, is energized through the ordinary light outlet, is remarkably flexible, oil-immersed and 100% electrically safe—shock proof.

The doctor will also receive a demonstration of the Inductotherm, a startling new development for creating heat in the tissues. A vacuum tube oscillator, generating an alternating current of 12,000,000 cycles per second. There are no body electrodes required. The Inductotherm introduces the most simplified and convenient method ever conceived for the heating of the deep tissues and for fever therapy.

Mr. J. O. Anderson and his men will be in charge of the exhibit and they will be prepared to tell about expected new developments in x-ray.

Laboratories Chappel Bros., Inc., Rockford, Illinois, will show their complete line of preparations for the treatment of anemias. These include Liver-Iron Compounds for secondary anemias; Oral Liver Extract for pernicious anemia; the well-known Subcutaneous Liver Extract—and a new concentrate for intramuscular use, intended for intensive treatment of patients with very low blood count.

Case reports obtained with Prephysin-Chappel, the pituitary gonad stimulating hormone, will be presented to interested visitors ahead of pending publications.

The Chappel exhibit is in Booth No. 9.

Mellin's Food Milk Modifier will occupy Booth No. 7. The proportion of maltose and dextrins in Mellin's Food, the protein and mineral salts content and the favorable effect of Mellin's Food on the digestibility of milk are distinctions that commend Mellin's Food as a modifier of milk for the feeding of infants.

The Professional Liability risk of the doctor cannot

be given an underwriting classification with any other type or types of insurable hazards, without disadvantage to the doctor. The circumstances out of which arise the reciprocal rights and duties of a doctor and his patient are peculiar to their relationship; the interest of the doctor in the management and disposal of charges of negligence against him is not to be compared to that of any other class of damage suit defendants. The most exacting requirements of adequate liability protection are those of the Professional Liability field.

The Medical Protective Company is exclusively engaged in that field.

Our representatives, thoroughly trained in Professional Liability underwriting, invite you to confer with them at exhibit Booth No. 24. Examine there the current issue of "The Doctor and the Law" the periodical which is published by the Law Department of The Medical Protective Company for its contract holders and which is devoted exclusively to a discussion of law affecting the practice of medicine."

Mead Johnson & Company will have on exhibit, in Booth No. 28, its complete line of infant diet materials including Dextri-Maltose, Mead's Standardized Cod Liver Oil, Mead's Viosterol in Oil, Mead's Cod Liver Oil with Viosterol, Mead's Viosterol in Halibut Liver Oil (liquid and capsules), Mead's Halibut Liver Oil, Mead's Brewers Yeast (powder and tablets), Pabulum, Mead's Cereal, Sobee, Mead's Powdered Protein Milk, Mead's Powdered Lactic Acid Milk, Mead's Powdered Whole Milk, Alacta, Reolac and Casec.

There will also be for the examination of physicians a complete line of Mead's services such as "Diets for Children from Four Months to Four Years," height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired.

Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

W. B. Saunders Company will exhibit, in Booth No. 14, its complete line of medical books. Of particular interest are a great number of new books and new editions, including Hinman's Urology, Kitchens' Diagnosis in General Practice, Curtis' three-volume work on Obstetrics and Gynecology, Bickham's fine seven-volume Operative Surgery, advance proofs of the new Mayo Clinic Volume, Callander's Surgical Anatomy, new editions of Babcock's Surgery, Beckman's Treatment in General Practice, Cecil's Medicine, De Lee's Obstetrics, Medical Clinics of North America, Surgical Clinics of North America, Stokes' Syphilology, and many others.

The DePuy Manufacturing Company, Warsaw, Indiana, invites every surgeon in Illinois to see the new Griswold Combination Reducing Frame and Splint at Booth No. 16. When attending the Illinois State Medical Meeting, make the DePuy booth your headquarters.

Tryparsamide Merck is the chemotherapeutic agent

of choice for the treatment of neurosyphilis. Its use is an office procedure. It is administered intravenously, does not disrupt the patient's daily routine of life, and is inexpensive. Full information can be obtained at the Merck Booth, No. 15.

Of interest to the profession will be the new improved Bard-Parker detachable blade perfected after three years of intensive research. This blade will be of valuable aid in surgical technic. Other Bard-Parker products to be exhibited include a complete line of Renewable Edge surgical scissors, a comprehensive sterilizing exhibit showing several types of sterilizing containers and a complete line of quality surgical instruments with the Lahey lock. Booth No. 2.

The purpose of our Company in exhibiting at your annual convention is largely, so far as we are concerned, a matter of good will toward the Illinois State Medical Society of which so many members are medical examiners for this Company throughout the State. The principal use made of the booth is merely to give our medical examiners at the convention an opportunity to meet various members of the Company who are from time to time present and also to give us an opportunity to meet personally some of the medical examiners whom we would not have an opportunity to know otherwise. Bankers Mutual Life Company, Freeport, Illinois. Booth No. 26.

V. Mueller & Company will show many new items at their exhibit, in Booth No. 20, including short wave diathermy, the new Shahan lamp, an Iodine Vaporizer for treating suppurative diseases of the nasal sinuses, the Furniss Clamp for intestinal anastomosis, in addition to their usual large display of staple instruments.

The Surgeons' X-L-Lyte meets the demand for an inexpensive yet handy, compact and serviceable diagnostic set.

The set contains ear speculum, tonsil pillar retractor, tongue depressor, magnifying lens, and nasal speculum, with direct illumination for all.

Nickel silver curette, probe, ear spoon and applicator are included in the set.

The set is contained in a neat and serviceable leather case which is equipped with a hookless fastener.

See this exhibit at the Universal Products Corporation booth.

SCIENTIFIC EXHIBITS

The following list is not complete, but the May ILLINOIS MEDICAL JOURNAL will have complete information relative to the prizes to be awarded for the best exhibit in the three classes designated by the Committee on Scientific Exhibits, and the entire list to be displayed.

1. The Chicago State Hospital: Roentgenological and Related Studies; Dr. Roy Kegerreis.

2. Tumor Clinic, Michael Reese Hospital: Modern

Radium Technique in the Treatment of Cancer; Dr. Max Cutler.

3. Veterans Administration Facility, Hines, Illinois. Photographs of Interesting Unusual Tumor Cases (especially of the skin).

4. Wesley Memorial Hospital: Arthritis Exhibit; Dr. Philip H. Kreuscher, Dr. P. B. Magnuson, Dr. Gilbert H. Marquardt.

5. Rush Medical College: Heart Movie—The Normal Heart Beat Cycle; Simultaneous Heart Action—Electrocardiogram—Heart Sounds; Dr. Clayton J. Lundy.

6. State Department of Public Health, Springfield, Illinois: The Achievements and Failures of Preventive Medicine in Illinois as Revealed by Mortality and Morbidity Records.

7. Northwestern University Medical School: Progress in Allergic Diseases; Dr. Samuel M. Feinberg.

8. Rush Medical College; Presbyterian and Cook County Hospitals: Disorders of Glands of Internal Secretion; Dr. Willard O. Thompson, Dr. Phebe K. Thompson, Dr. S. G. Taylor III, S. B. Nadler, Dr. E. G. McEwen.

9. Billings Hospital, University of Chicago Clinics: Development of Gastrosocopy (with film showing the technique of Gastrosocopy); Rudolph Schindler.

10. Pathology of Coronary Disease; R. H. Jaffe.

11. American Medical Association. An interesting exhibit which was prepared for the Congress on Medical Education and Hospitals, February, 1935. Other interesting material showing the work of the American Medical Association will appear in the exhibit.

12. "New Methods of Preparation of Multicolored Corrosion Specimens"; Joseph K. Narat, from the University of Illinois Department of Anatomy.

13. "Skull Fractures"; Dr. Harry E. Mock, Chicago.

14. "The Results of Immunization and Dick Testing of Nurses at Cook County Hospital"; Dr. Paul Rhoads, Chicago.

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CHRONIC ULCERATIVE COLITIS: A DISEASE OF SYSTEMIC ORIGIN

Louis A. Buie and J. Arnold Bagen, Rochester, Minn. (Journal A. M. A., Nov. 4, 1933), review in part what has been learned about the bacteriology of chronic ulcerative colitis in the last ten years and correlate the living and the postmortem pathologic conditions. They discuss the bacteriology, the proctoscopic characteristics and the microscopic characteristics in the tissue in chronic ulcerative colitis.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

L. E. Day, M. D.
I. H. Neece, M. D.
E. H. Ochsner, M. D.
E. H. Weld, M. D.

Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

C. S. Skaggs, M. D.
R. K. Packard, M. D.
H. M. Camp, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

There have been very few developments in the economic field of medicine in the past month. In the national as well as state legislative bodies, their time has been taken up by other phases of the governmental problems and they have not had the time to take up medical care. We should not be lulled into a feeling of safety by this apparent lack of interest, but instead should continue to realize that the ground work and general planning is being carried on by a group of reformers, whose whole time is given to working out the plan of social security, in which the medical care is but one of the parts. We should continue to become conversant with the general question of state and federal medicine by reading and attending meetings held to acquaint the medical profession with the problem. As physicians, we have a magnificent opportunity to present our side of the question to the laity through the different service clubs, women's clubs, Parent-Teacher Associations and like bodies. These organizations are requesting speakers on these subjects and it is up to the medical profession to supply the men. If we can convince these people that it is to the best interest of the patients as well as the nation, not to mention the medical profession, not to make any radical changes in the present method of practicing medicine, we have enrolled a powerful group on our side. It is such groups that can influence the nature of legislation when the time comes to prevent the proposed changes. These organizations must be presented definite facts, and must be convinced that the medical profession is not opposed to changes because of selfish interests, but having an open mind and being ready to make any changes for the good of their patients, are ready and willing to listen to all proposed plans. We must insist, however, that we are after all the best fitted to know what is the best for the sick.

Early in the year a questionnaire was sent to the Mayors of the cities of Illinois, asking them

questions in regard to the medical care being received by their citizens. Up to this date 143 replies have been received. The answers are very interesting, and show that there is no criticism of the manner in which the medical profession have carried their burdens the past few years. The first question was: "Is the medical care in your community adequate and satisfactory?" 139 Mayors answered this "Yes," one with reservation, while only four, all in southern Illinois, answered "No."

The second question was: "Has the medical profession carried on in a satisfactory manner during the depression?" 141 answers of "Yes" were received and only two of "No."

The third question was: "What suggestions have you as to how medical service could be improved?" This brought out 34 definite ideas. Out of these 34 suggestions, 21 placed the trouble with present methods on the shoulders of either the Relief Administration or the Supervisors and in some instances on both. Only two suggested that medical fees were too high.

The results of this questionnaire are quite encouraging from the viewpoint of medical men. For many years we have heard the assertion from the reformers that fifty per cent. of the people of the U. S. were receiving inadequate medical care. Of course, what constitutes adequate care is a question of opinion, based on a knowledge of what is needed and what can be afforded either by the individual or the supervising governmental unit. Surely the Mayors of these towns are shrewd enough to know how their constituents feel and are a better judge of the general opinion of their people than any representative of welfare units. The preponderance of the answers that the medical care was adequate and satisfactory surely should go a long way to refute the assertion that fifty per cent. of the people were not receiving adequate care. After all, the people themselves should know how well satisfied they are with the present method of medical care.

It is also quite interesting to see that 21 of the 34 answers as to suggestions for improvement, hit the same spot. Namely, the care given, by either the Relief organizations or the Supervisors, if not both. This surely is not a recommendation for supervision by the laity on medical questions. With such a preponderance of criticism against both these, it seems that the people are much better satisfied and probably better cared for by the family physician, when he is allowed to use his own judgment as to the nature and frequency of treatment, without being constantly dictated to by some lay executive. If this can be taken as a fair sample of the reaction of the country, and it must be admitted that it is based on a rather meager return, we must look with question at any extensive plan for the control of medical care by governmental agencies, regardless of whether this agency is local, state or national.

We must remember the experience of the nations of Europe, especially Germany, with Health Insurance, beginning under Bismarck in the early eighties of the last century. From a rather humble start as a political expedient, it spread until it became such a burden that some of the present economists of Germany blame considerable of Germany's recent trouble to the extension of this plan. Surely here in the United States, we do not wish to allow any such revolutionary trends to get started. And once they are started, the ever-increasing army of employes become interested principally in holding their jobs and extending the limits of their influence. While they may be honest in their opinions in the matter, they become so self-centered that their judgment is poor and the people as a whole pay the penalty.

We hope to have a complete report on the answers received on this subject to present to the annual meeting at Rockford in May.

The Northwest Medical Conference was held in St. Paul, Minnesota, on February 24, 1935, at the Hotel Lowrey. It was an earnest meeting of earnest medical men. Starting at a breakfast at 8:30 a. m., the meeting continued until 5:30 p. m. with a short intermission for lunch. The entire time was given to discussion of the current economic problems. There were present the representatives from 16 states, principally in the northwestern part of the United States. Gradually the influence of this conference is extend-

ing eastward as evidenced by the attendance this year of outstanding men from Michigan and Indiana. Illinois was represented by the President and Secretary of the Illinois State Medical Society as well as the Chairman of this Committee. Ex-President Kreuscher of Chicago was the presiding officer of the meeting.

It was decided to have the next meeting in February, 1936, at Chicago. This will give the doctors of Illinois, Indiana, Michigan and Wisconsin an opportunity to attend the meeting and to enter into the discussion. It is quite generally agreed that this is the outstanding meeting of the country on the question of Medical Economics and a large attendance is expected.

One leaves the Conference with the feeling that the problem of medical men is the same throughout the country and is heartened considerably by the fact that so many men are giving the subject serious consideration. All agreed that much more work was necessary and felt that the medical profession as a whole were not aware of the seriousness of the situation nor had they devoted the necessary time to the subject to be able to influence their acquaintances and friends on the subject.

It is to be hoped that the doctors of Illinois will attend the next meeting in large numbers. Due and timely notice will be given of the exact time and place.

E. S. HAMILTON,

Chairman of the Committee on Medical Economics, of the Illinois State Medical Society.

HEALTH INSURANCE

We should approach the subject of Health Insurance with an unbiased mind whether we be physician, social worker, politician, industrialist, educator or a member of the lay public.

As physicians we should not approach the problems from the viewpoint of what will be the best economically for the physicians, but rather from the view point of what will during a period of years be the best for the public as a whole, because I am convinced that what will be best for the public will be best for us. National health is our greatest national resource. It requires supervision, investigation, prevention, treatment and research and a constant training of professional men and women to carry on the work. Necessarily it becomes an economic problem both to those who provide such care and to

those who receive it. There are over one million people employed today in rendering medical service to the public and it ranks as one of our major industries. Medical care must be classified as one of our first necessities of life. It is obvious that there must be a cost attached to it and that this cost must be met. It has drawn about it perhaps more of a humane aspect than other of our necessities of life, and as such it takes first place among our charities. It becomes first a personal or family economic responsibility, then a community responsibility, then a Township or County and then a State, and finally a Federal responsibility. Other economic necessities of life follow in the same course and become just as humane and lead to just as dire consequences if left unattended. It is not an isolated economic problem any more than food, clothing, shelter, transportation, etc., are isolated problems. And finally let us remember that health is not just a matter of treating disease, but it is also a matter of proper food, clothing, shelter, education, recreation, etc., and when these are neglected disease increases, expenses mount, disability ensues, and the general morale sinks steadily.

Man has long looked for social and economic security. In fact, he has always fought for it. It has been his urge in life. It has to a great extent been an individual fight, but it has also been a collective battle. As society developed cohesion became a necessity to protect common interests against outside and unfriendly sources, and in the long train of man's development over thousands of years governments of various forms have been established, and governments have found that they not only had trouble with other governments but that the social, political and economic problems of their own people were manifold, and the rapid changes resultant upon invention have brought new problems that he must face for his social and economic security. Nor will this stop.

These rapid changes in the past one hundred and fifty years during which period most of the great civilized nations of the world have undergone industrialization, have produced the capitalist and the laborer and have made laboring man entirely dependent upon capitalistic employment for his subsistence, and upon this trail have followed in rather rapid succession periods of prosperity and periods of depression and each period has brought forth new problems of the

social and economic rights of the contending forces and government has had to assert itself in their just settlement. Government usually steps in to function only when man as a social unit fails to adjust his problems. There has been almost a steady flow of legislative action during our industrialization aimed toward social and economic security and let us be frank and say that in most instances it has been forced by the short-sightedness of capital. Public schools had to be fought for, shorter hours of labor had to be fought for, child labor, and sweat shops had to be fought against, and the right of collective bargaining had to be fought for. The workmen's compensation had to be fought for and incidentally injuries decreased by precaution following such laws, and already twenty-six states have old age pension laws. And now we approach to a basket full of legislation aimed at social and economic security.

We move very rapidly in these extremes of prosperity and depression and we formulate all kinds of fantastic and fancy ideas relative to the immediate period we live in. It is needless to say that in 1927-28 we had fantastic ideas of two autos in every home, two chickens in every pot, country estates, exclusive places for recreation and a specialist for every disease, which was to say the least fantastic if we thought it could last forever. And now when we move into a great period of depression we are willing to try all sorts of fantastic proposals to cure our ills, and are willing to pass all types of legislation with little study in the hopes that they may do public good. Repeated and unskilled experimentation is always dangerous during an epidemic.

Our final decision on Health Insurance should then be based upon a study of:

1. The needs for adequate medical care that are not being properly met.
2. The present organizations and agencies providing medical care in those areas where adequate medical care is not being obtained.
3. What is the cause then of lack of adequate medical care?
4. Experimental plans now being carried out to provide adequate medical care.
5. Health Insurance programs in other countries.
6. The effect upon medical education, research, and progress under political control.

7. The cost of medical care as now practiced in the United States and under political control.

8. Does socialization create and develop a better or weaker individual and will the socialization of medicine lead to socialization in general?

Surveys made from various sources bring forth conflicting statements and as usual one may prove his point by statistics that are to his liking. But we are not interested in attempting to prove our point, but only in finding definite facts. It is my opinion that statistics do prove that there are in the low income group a fair percentage of people who cannot afford adequate medical care, this being due not only to low income but to the uneven distribution of sickness, ranging from zero in some families to \$850.00 per year in others. To further substantiate the fact that there are those not affording adequate medical care I have checked my own practice of those employed and find about twenty-five per cent. of them unable to have adequate medical care, and I have questioned large numbers of physicians and they have all said that among their practices such patients exist, the percentage varying according to the type of clientele they have. The sooner we recognize this fact and set about finding some solution for it, the sooner will we thwart the progress of Health Insurance by legislation. The common pleas of the Doctor is that he cannot collect, and you and I know his poorest collections and lowest fees are in the low income group. Why, many times we don't even attempt to collect because we know it deprives the family of the immediate necessities of life. But again let us not forget that these same people do not have an adequacy of the other necessities of our modern civilization that are essential to health.

All investigators are agreed that with few exceptions every part of the country has enough physicians, nurses, hospitals, etc., to give adequate medical care to those not now receiving it. In fact, there is an oversupply of doctors, nurses and hospitals for the present purchasing power of the public for medical service. Some writers have advanced the thought that we have too many doctors, too many nurses and too many hospital beds, and that the solution of the problems for the profession lies in reducing our number of graduates, and thereby relieving competition. But in prosperous times the hospitals were full, the doctors and nurses were busy, all doing

quite well financially. But now it has changed, not because the numbers have changed, but because the purchasing power has dropped. It is purchasing power that turns the wheels of industry, and produces economic and social security.

What is the cause then of the lack of adequate medical care? Is it because the cost of medical care is too high or is it because the income is too low? There have been in the past and there still remain a few who have said the costs were too high. This has not come so much from the public as from certain individuals and foundations, who have fostered some plan of Big Business putting medical care on a mass production basis or some form of Health Insurance by the State. I don't want to criticize Big Business; I believe in it. Big Business, I am sure, was sincere, but it was suffering from gigantism, and did not recognize its own disease, and it was the diseases of Big Business that has perpetrated this avalanche of legislation for social and economic security. Nearly every study made has rendered a decision that the costs of medical care were not too high. Rapid scientific development has increased medical costs, but only as it has increased service.

Those social workers and reformers outside of Big Business who have advocated some form of social Health Insurance as a care for the present evil are to my mind made up of three classes. Those who are socialistic politically, those who are sincere in social welfare work, and feel that it is a community responsibility, but that the community is not discharging its obligation and therefore it becomes a problem of State. Those who believe that it is a political expedient under our present mass rule. A discussion of these three seems unnecessary other than to say that the first and last are contrary to our conceptions of a pure democracy. The second group should merit our consideration and study.

I would not deny that there are instances of overcharges and when that occurs it is an indictment against the profession. But the problem nevertheless remains and while local community charities take care of a large portion of this work and county agencies take care of a portion of it there still remains that percentage not receiving adequate medical care because of a discrepancy between their income and medical costs. What is the solution? It is generally understood and admitted that doctors have always reduced their

charges when people were bordering on indigency, and hospitals have maintained charges and services as low as possible. We cannot have two kinds of medical care from the medical viewpoint. Appendicitis bears no different dangers in the rich or poor, and requires the same operating room, the same anesthetic, the same sutures, and the same skill. Luxury in disease does not come within medical care itself, it may come in the appointments outside of medical care. We cannot mass treat the illness in this group nor can we give a shorter wheel base to pneumonia in the poor, and a longer one in the rich, because the same diagnostic skill, the same nursing, the same drugs are required. Our final conclusion must be, and is so agreed by most students of the subject, that the real cause for inadequate medical care is low income. Can the medical profession solve that problem? Is it strictly speaking our problem? I think it is a problem for capital, for industry, for labor and for the profession to find its own solution and keep it free from political spoils.

Experimental plans are now being carried out in various parts of the country to meet this problem. There has been a cry from various sources that the medical profession does not visualize the problem and that they will make no study and no change. This is far from a correct statement. We want to experiment and the progress of medicine is recognized by all. But we want to experiment with care for we are dealing with human life and human happiness.

In various parts of this country experiments are going on and have been for years to solve this problem of inadequate medical care for the poor. These plans are being carefully studied with the view of adopting those that best meet the problem. We do not care to rush pell-mell into these experiments. Let them be proved, is our motto, because we assume seriously our responsibility. We believe these experiments should be under medical supervision because medical men understand medical matters. We invite constructive criticism. The following plans now in operation are being studied as are also others:

1. Alameda, California, Plan.
2. Rochester, New York, Plan.
3. Wayne County Plan.
4. Group Hospital Plans.

These plans can be found in the Handbook

of Sickness Insurance, State Medicine and the Cost of Medical Care—published by the Bureau of Medical Economics.

Health Insurance programs in other countries. Health Insurance programs in various forms exist in several countries. We have studied these plans. We have studied the background of their development. Bismarck was the father of Health Insurance in Germany and it was instituted as a political expedient. Lloyd George in England sponsored it as a political expedient. Has it been a success or a failure as regards the health of the people? Let us look at some accepted facts:

1. *Sickness has increased.*
2. *Mortality is lower in the United States than in countries having Health Insurance.*

There is no valid evidence that a Health Insurance scheme is needed or would result in advantage in the United States. This is clearly shown by all of the usually accepted indices of health conditions. Statistics published by the League of Nations show that the United States in 1933 experienced a lower general death rate, a lower infant death rate and a lower mortality and morbidity rate from diphtheria and tuberculosis than any other first class national power for which data are available. The data are presented in the following table:

MORTALITY AND MORBIDITY, 1933				
	All deaths Per 1,000 Pop.	Infant deaths Per 1,000 Births	Diphtheria	
			Deaths Per 10,000 Pop.	Cases
United States	10.7	59	3.9	39
Germany	11.2	76	5.6	114
England and Wales.....	12.3	63	6.3	117
Scotland .....	...	81	7.2	180
France	15.8	75	...	50
Irish Free State.....	13.6	65	12.9*	113
Poland	14.2	128	17.0*	52
ILLINOIS	10.5	49	1.7	22

*1932.

Health improvement, moreover, has been more rapid in the United States than in any other nation except some of the small nations with homogeneous populations and many of the states in the Union have health records equal to those of any nation. This experience is valid testimony that the prevailing system of medical practice and public health service in the United States is superior to that found anywhere else in the world.

3. *The costs for the insured have been higher per patient than for those not insured. In Ger-*

many 35,000,000 insured pay four times as much as 30,000,000 not insured.

This has been pronounced in some countries and is of course bound to occur under any form of dole.

Under Health Insurance, under State or Federal control, the free choice of a doctor is denied. That alone is a thrust at democracy. It is bureaucracy at its height. Who is to determine who is to take care of your sick ones? The right to choose your doctor should not be sold on the Political Auction block.

4. *The effect on Medical Education, Research and Progress.*

This must be considered seriously. Can you expect the best type of men to enter the practice if they are under political control and domination? Teaching must eventually deteriorate, and research must likewise lose its initiative. Research exists in man's brain and cannot be produced or developed by vote power or under political change. It is admitted that under Health Insurance doctors are overworked, have long hours, and have neither time nor energy left for study or research.

We are convinced from various studies that medical education, research and progress are deteriorating in countries having compulsory Health Insurance and that the United States is becoming the medical center of the world. Should it be our policy to change this? Does the public want a change that is going to bring a poorer medical service to future generations?

5. *The cost now and under Political Control in form of Insurance.*

In Germany the number employed as clerks, investigators, etc., are greater than the number of physicians employed, this accounting for the excessive cost of Health Insurance. The costs in every country are increasing rapidly as would be expected under any system under political control. It is estimated that if 50 per cent. of the people of the United States were insured under Health Insurance that the expense would be about \$2,500,000,000.00 per year. That would have to be met by taxation. What has happened to nations that have steadily piled up taxes? You know the answer is written down through the progress of history. Do we believe that our

government could or would escape all or any of the abuses of such a system?

6. *Socialization.*

That there has been social legislation that was necessary to bring about a more equitable, social and economic security in the past cannot be denied. That much of it could have been avoided by clear thinking and honesty is my firm conviction. That the passage of such legislation even when necessary has brought new evils cannot be denied.

On a general basis one may say that what man gains by intellect is permanent and creates little or no evil (unless put into dishonest hands) but what one gains by legislation is not permanent and at once sets up an endless chance of opportunities for graft and more legislation to cure the new evils, therefore, we have thousands of laws on our books and are fast becoming what Lyman Abbott in his book, "The Rights of Man," declared to be a bastard form of Government which he defined as a Bureaucratic Government of office holders and law enforcers.

We are all interested in the common good. We want to find a solution to all of our problems without seeking or needing Federal control. We want to cooperate with all the Federal and State and local public health departments that are so essential to safeguarding public health. Just so we want to cooperate with the government in other social and economic plans that fall within their scope.

We do not want social or economic legislation that brings new and more serious troubles. I am as much opposed to them as I am to Health Insurance. And let it be understood that socialization of one part of our economic necessity is the first step to socialization of other necessities. When you nibble at the public crib you will eventually ask for a full course.

Is it not possible for us at the height of our civilization to still be men and women, to stand upon our own resources, to retain our own individualism?

The greatest heritage we can leave is that of opportunity. You inherited that, and it is yours to guard and protect and to pass it to your children. A large majority of the great leaders of this country have come from the common ranks. Poor people may rise to great heights if we leave the road of opportunity open for them to travel.

When you close that road, when you shackle man under a form of taxation and bureaucracy that not only kills, but prevents his urge to rise, then you have started something that unless stopped will end in collapse and revolution. And finally, we must not criticize government for safeguarding the interests of the masses through legislation if the leaders in Industry, Capital, Education and the Profession fail through common counsel to adjust their own problems.

We are not blind to the facts. We are attempting to be careful and wise. We want to cooperate with Industry. We want to maintain that high standard of ethics that has accomplished so much for medicine and for the whole civilized world.

R. K. PACKARD,

Chairman of the Council of Illinois State Medical Society.

GOVERNMENT SPENDING AND BOLSHEVISM

For the past decade or more we, as a people, have rushed wildly ahead increasing governmental expenses. We have forced the government—and this applies all the way down the line from federal to local—to engage in activities which are not the functions of government and so, of necessity, weaken our whole social structure. We have demanded this or that expenditure and, for some unaccountable reason, have assumed that we were paying nothing when we voted a bond issue. As we have stated several times, the fault does not lie with those elected to office and who voted the appropriations, but instead to well organized minorities which have insisted upon the expenditure, usually in the name of "public improvement" or "social reform."

This much is certain, unless steps are taken to drastically reduce the cost of conducting government—local, state and federal—and this mighty soon, the next reform will be to wipe out the private property right completely (which is Bolshevism), and when that happens, if it does, your nicely improved home or farm which, because you could borrow money, has been put in such shape that it enables you to make a living, will no longer be yours. You lose and the fellow to whom you owe the five thousand dollars loses with you.—Committee on American Education.

THE GREAT DOCTOR

The great doctor must know almost as much about the social order as the sociologist; almost as much about the mind as the psychologist; as much about the subtle art of counselling as the priest. He must refuse to commercialize his profession and decline to tear his specialism out of the living texture of the medical fabric. He must be able to distinguish between Hippocratic ethics and hypocritical etiquette.—Glenn Frank.

Correspondence

LEGISLATOR OPPOSES CORPORATION PRACTICE OF MEDICINE

Lewistown, Ill., March 27, 1935.

Dr. E. P. Coleman,
Canton, Illinois.

Dear Dr. Coleman:

I appreciate your communication concerning House Bill 425 now pending in the Illinois General Assembly.

I owe too much to the efficient, faithful and unselfish service of various members of the medical profession rendered to the members of my family and myself for me to give my consent or support to any legislation that will destroy the individuality and efficiency of the conscientious physician and surgeon.

Corporate practice of law is prohibited in this State in the interest of the public welfare and justice. Certainly the promotion of health of our citizens is as important as the maintenance of property rights, and the rights of the individual practitioner of medicine are as sacred as those of the lawyer.

I have never believed in the so-called "cure all" remedies and it seems to me that corporation practice of medicine would encourage use of such nostrums. It would relieve the physician of individual responsibility and, to a certain extent at least, individual incentive to progress in the profession.

I can find no merit in the proposed legislation and many reasons are apparent for opposing its enactment into law.

REED F. CUTLER,
Representative in General Assembly.

KIWANIS CLUB OF NORTHWEST CHICAGO CONDEMNS CORPORATION PRACTICE OF MEDICINE

At a regular meeting of the Citizens Council of Northwest Chicago held on March 19, 1935, the following resolution was adopted:

WHEREAS, there has been introduced in the legislature of the State of Illinois "An Act to amend the Medical Practice Act" by adding thereto Section 20A providing that corporations may practice medicine, which said Act is known as HB No. 425, and,

WHEREAS, the indiscriminate practice of medi-

cine by corporations would result in the mass treatment of human ailments to the detriment of public welfare, and,

WHEREAS, the practice of medicine is essentially an individualistic profession and the practice of medicine or surgery by a corporation is repugnant to all of the traditions of medicine and is repugnant to the relationship between doctor and patient, and,

WHEREAS, such practice by a corporation would result in unethical advertising to the detriment of the public and to ethical physicians and surgeons, and,

WHEREAS, the Citizens Council of Northwest Chicago is composed of delegates from 40 civic organizations representing approximately 70,000 residents of the Northwest side of Chicago.

Now, Therefore, Be It Resolved, by the Citizens Council of Northwest Chicago that we are unalterably opposed to House Bill No. 425 or any similar legislation permitting any corporation to practice medicine, and

Be It Further Resolved that copies of the foregoing resolutions be forwarded to the Chicago Medical Society, State Medical Society and to each member of the Committee on Public Welfare of the House of Representatives at Springfield, Illinois.

CITIZENS COUNCIL OF NORTHWEST CHICAGO,

HECTOR G. LAREAU,
Chairman, ex-Officio.
H. BARRY MCCORMICK,
Chairman.
CARL PRETZEL,
Vice Chairman and Attorney.

MARTHA WASHINGTON HOSPITAL CON- DEMNS CORPORATION PRACTICE OF MEDICINE

WHEREAS, there has been introduced in the legislature of the State of Illinois "An Act to amend the Medical Practice Act" by adding thereto Section 20A providing that corporations may practice medicine, which said Act is known as HB No. 425, and,

WHEREAS, the indiscriminate practice of medicine by corporations would result in the mass treatment of human ailments to the detriment of public welfare, and,

WHEREAS, the practice of medicine is essen-

tially an individualistic profession, and the practice of medicine or surgery by a corporation is repugnant to all of the traditions of medicine and is pugnacious to the relationship between Doctor and patient, and,

WHEREAS, such practice by a corporation would result in unethical advertising to the detriment of the public and to ethical physicians and surgeons;

Now, Therefore, Be It Resolved that the staff of the Martha Washington Hospital is unalterably opposed to the passage of House Bill 425 or to the passage of any similar legislation permitting any corporation to practice medicine, and,

Be It Further Resolved, that copies of the foregoing resolution be sent to the Chicago Medical Society, State Medical Society, Governor Henry Horner and to each member of the Committee on Public Welfare of the House of Representatives.

H. M. Ross, M. D.,
Pres. Staff.
EDWARD ROWLANDS,
Secy. to Staff.

IF NOT SUPPORTED THE ANNALS OF MEDICAL HISTORY WILL SUSPEND PUBLICATION

Richmond, Virginia, March 7, 1935.

To The Editor:

The last number of the *Annals of Medical History*, as you may have observed, carries a disturbing editorial directed to the few subscribers and many readers of this premier publication. In it Dr. Packard sets forth what have been universally recognized as the sterling qualities of the *Annals* and calls attention to the fact that, carrying no advertising matter, it has to depend entirely for support upon its subscribers. Concluding with the announcement that "the *Annals* is faced with the unpleasant possibility that it may have to suspend publication," he remarks that should such an eventuality come to pass "it will be many a long year before a publisher will be found of sufficient courage and disinterestedness to undertake a similar project."

We are all of course familiar with the history of the origin of the *Annals*, of the part Sir William Osler and others of his calibre played in founding it, and of the part its publishers,

Paul B. Hoeber, Inc., have had in its worth and beauty. We are proud that such a publication should be produced in this country, and none of us is willing to stand idly by and see such a magnificent undertaking perish for lack of support.

The *Virginia Medical Monthly* is writing you to ask if you will not join us and other State journals (1) in putting this matter before your readers editorially, (2) in urging upon individuals and component societies the obligation to become subscribers to the *Annals*. If in this way no more than ten new subscribers in each State are secured, the financial embarrassment in which the *Annals* finds itself at this time would be completely removed. May we count upon your cooperation?

WYNDHAM B. BLANTON, M. D.,
Editor, *Virginia Medical Monthly*.

ANNOUNCEMENT

The Alumni Association of the University of Illinois College of Medicine will entertain its members informally at dinner on Wednesday, May 22, 1935, at the Faust Hotel, Rockford, Illinois, at the Illinois State Medical Convention. Dean Davis of the College of Medicine will be the honored guest. Every alumni is urged to make an effort to be present and meet his classmates.

EDUCATIONAL COMMITTEE

Statistical Report for March

- 70—Physicians were scheduled to address meetings of lay organizations. Attendance at these meetings numbered in the thousands.
- 10—Scientific programs were arranged for medical societies.
- 24—Radio talks were given over Chicago stations.
- 18—Package libraries were compiled and sent to physicians.
- 96—County Medical Society secretaries were furnished material on the "Summer Round-Up" of the Congress of Parents and Teachers.
- 192—Educational Articles were sent to program chairmen of the Women's Auxiliaries.
- 508—Articles were sent to libraries in the state.
- 150—Reprints of "Why We Oppose Health Insurance" were sent to Illinois libraries.
- 300—Programs of a Health Institute sponsored by the 7th District of the Illinois Federation of Women's Clubs were mimeographed. The Committee scheduled three speakers for this Institute.
- 75—Programs were mimeographed for the Woman's Auxiliary.
- 2,012—Invitations were prepared and mailed concerning meetings of Perry, LaSalle, Jefferson-Hamilton, Franklin, Bureau, Vermilion, Randolph County Medical Societies, and the

Woman's Auxiliary of the Illinois State Medical Society and the Chicago Medical Society.

- 887—Releases were furnished newspapers announcing meetings of LaSalle, Jefferson-Hamilton, Franklin, Bureau County Medical Societies, the Annual Meeting of the Illinois State Medical Society, and meetings of the Northwest, Calumet, Jackson Park, North Shore branches of the Chicago Medical Society.
- 500—Releases of health educational material for use over county medical society or state medical society authority were provided newspapers.
- 7—New health educational articles were written and approved by the Committee.
- Radio talks were furnished program chairmen of clubs and parent teacher associations.
- Information concerning the program and plan of work of the Educational Committee was furnished Secretary of the Utah State Medical Association.

JEAN McARTHUR, Secretary.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

Report of Public Relations Chairman

Public Relations is a theme covering many activities. It takes in every phase of club life. This past year we started with the Century of Progress, keeping open house in our booth, every Cook County Auxiliary supplying hostesses consecutively every day. Several hundred visitors registered and our hostesses gave a few minutes lecture to every group interested in the progress of medicine during the past 100 years in Illinois, and gave out literature and pamphlets announcing the lectures on medicine in the South Hall by members of the Chicago Medical Society.

The Public Relations Chairman assisted the Program Chairman in sending out notices to 311 members announcing the public meetings sponsored by the Chicago Medical Society on the popular topics of Heart Disease, Cancer, Weight, You and Your Germs. These lectures were well attended.

On September 16th the Auxiliary accepted an invitation to visit the Ottawa Tuberculosis Sanitarium, fifty-six members with their husbands responded. A most delightful time was had by all, consisting of luncheon, trip on the new lake to the locks, with the novel sight of seeing barges passing through the locks. We all returned to the sanitarium at 7:00 P. M. where every one bid good night to our host, thanking him for a glorious outing.

Early in the fall Mrs. Gordon Thorne who so kindly furnished our booth at the Century of Progress, invited fifty auxiliary members to her beautiful home on Lake Shore Drive. A luncheon was served, followed by moving pictures of Japan. Forty-seven dollars for our treasury was realized from this lecture.

Contacts were made down-state. The Educational Committee of the Illinois State Medical Society sent material to those auxiliaries requesting more information on vivisection and children's diseases. Through

Mr. B. K. Richardson, Chief of Division of Public Health Instruction, Springfield, the Illinois Health Messenger was sent to all down-state presidents, and at the request of Mrs. Willstead of Chatsworth, Illinois, the Health Messenger was placed in the following institutions: Dwight Public Library, Chicago & Alton Railroad Station, West Side School, East Side School, Dwight High School. At Pontiac the Messenger was placed in the Masonic Club Room, Elks Club, Chicago & Alton Railroad Station, Y. M. C. A., Chatsworth Public Library, and the Chatsworth High School Library.

On January 2nd, Dr. C. I. Reed gave a very fine talk on vivisection and what it has done for the human race. A debate on vivisection was held at the Ideal Club. Several weeks later a heated debate was held at the Cottage Inn, at which about 250 were present. The anti-vivisectionists proved a very weak opponent.

On February 26th your Public Relations chairman attended a preliminary program of the Midwest Conference on Housemaking at Hotel Sherman. A three day conference will be held March 19-20-21, at which time a medical lecture will be given, and we hope for a picture and lecture on radio and magazine advertising, misrepresenting cures and medicines.

There are many things a Public Relations chairman could contact if she could devote all her time to attend the various entertaining opportunities presented to her.

MRS. A. H. BRUMBACK,
Public Relations Chairman.

HYGEIA

Hygeia is the official lay magazine of the American Medical Association, and not only contains a wealth of most worth while and interesting reading, but a bountiful supply of helpful suggestions to both doctors and laymen.

Hygeia should hold first place as a magazine in every doctor's home and office, and if thusly placed will help the layman to better understand health problems.

It not only helps Doctors in every section of the city and country, but does put before the layman in a clear, concise way problems confronting them in the medical field.

Hygeia reaches out into the rural sections where knowledge of the medical world is not so widely diffused—but where now such knowledge is being sought.

It also is most useful in Parent Teachers Organizations and is a great help in all Auxiliary work and should be given a place on every Auxiliary program.

Illinois has always been on the Honor Roll of Hygeia and this year will prove no exception. Cook County has always come through with more than its quota, as is true of some of the much smaller Counties.

Sangamon County has done a most praiseworthy piece of work this year, in placing Hygeia in all Public and Parochial Schools, High Schools and the Public Library in Springfield. This was accomplished through the Auxiliary to the Sangamon County Medical Society.

Perhaps it may prove of interest to other Auxiliaries

to know how this money was raised for Hygeia. Our old but much tried plan of a card party was held, but to this was added a "Country Store"—where everything from toys to food was sold, and it netted many dollars to the fund and contributed much fun and enjoyment to the occasion.

There are many ways in which money may be raised for the placing of Hygeia in every city and rural school and station waiting rooms, and I do hope that these places and others may soon boast of a copy.

Hygeia Magazine is different from any other magazine, in that it contains much data informing us of the vitalness of our every day problems pertaining to our health.

While there are many interesting and useful magazines, Hygeia is certainly the most useful, since it contains many articles so vital to our health and well being. Let's subscribe at once for Hygeia and make this its banner year.

(MRS. H. B.) HELEN B. HENKEL,
State Hygeia Chairman.

Woodford County Auxiliary:

We have four meetings a year having dinner with the doctors of the Woodford County Medical Society at these times. We are fully paid up and have a one hundred percent membership. We sent our alternate to the State Convention at Springfield. At our recent meeting at Roanoke, Illinois, March 11th, we had election of officers:

President—Mrs. W. S. Morrison, Minouk.
Vice-President—Mrs. C. L. Boone, Washburn.
Secretary and Treasurer—Mrs. Noel Gordon, Minouk.
Historian—Mrs. F. W. Nickel, Eureka.
Delegate—Mrs. F. W. Nickel, Eureka.
Alternate—Mrs. E. B. Pearson, Eureka.

We hope at the end of our second year to have a larger and more interesting report to make.

(MRS. R. T.) FAITH C. RODAWAY,
Roanoke, Illinois.

Sangamon County Auxiliary:

Our last meeting was with Mrs. Rolens at the Home-maker's Institute. Mrs. Harry Otten spoke on "Teaching Social Hygiene" in Public Schools and Dr. R. H. Woodruff on "Vital Statistics." The social hour is enjoyed very much and serves to create closer friendships.

We had a public card party with Mrs. J. E. Reisch as chairman to raise funds. We cleared ninety-two dollars and felt it was a grand success. We will now place Hygeia in the library, public and parochial schools of Springfield.

Dr. Charles B. Reed, president-elect of the State Medical Society spoke at a joint meeting of the Sangamon Medical Society and the Auxiliary at Abraham Lincoln Hotel, March 7th. His subject was the "General Practitioner." The meeting was in the form of a banquet and was well attended.

(MRS. ROBERT) SUSAN H. FLENTJE,
Springfield.

ILLINOIS RADIOLOGICAL SOCIETY

The Illinois Radiological Society will hold its next meeting at the Illinois Hotel, Bloomington, Illinois, on Sunday, April 28, 1935, at 10:00 A. M., with the following program honoring the fortieth anniversary of Roentgen's discovery. The medical profession is cordially invited to attend.

10:00 A.M.—Business Session.

10:30 A.M.—"Exhibition of Interesting Films."

(Bring bone films especially.)

11:30 A.M.—Dr. Emil Grubbe.....Chicago, Ill.
Has been invited to give a "historical talk showing that X-ray therapy was born in Chicago."

* * *

Dinner—12:30 to 1:30

(\$1.00 Per Plate)

* * *

1:30 P. M.—Dr. Heinz Langer.....Pittsburgh, Pa.
"Diseases which present signs of over-irritation of the sympathetic nerves and their treatment by X-ray."

2:15 P. M.—Dr. James H. Hutton.....Chicago, Ill.
"Hypertension and Diabetes."

3:00 P. M.—Professor George L. Clark.....
..Physicist, Univ. of Ill., Champaign, Ill.
Author of book on "Practical X-Rays,"
"Advances in X-ray Physics."

3:30 P. M.—General Discussion.

—W. M. HARTMAN, M. D.,
President, Macomb, Ill.

STATE OF ILLINOIS
DEPARTMENT OF FINANCE
SPRINGFIELD

Rule No. 32 Retailers' Occupation Tax Division
OPTOMETRISTS' OCULISTS AND OPTICIANS

Optometrists and oculists are not liable for Retailers' Occupation Tax with respect to receipts from professional services rendered, such as examination and refraction of the eyes or ocular care and treatment. However, if optometrists or oculists also act as opticians, or sell spectacles, eye glasses, lenses, frames, or other tangible personal property to users or consumers, they incur liability for tax with respect to receipts from such sales *separately billed to clients*. If optometrists or opticians sell eye glasses, spectacles or lenses pursuant to examination for a lump sum or single amount, they incur liability for tax with respect to the *entire receipt* from the transaction.

Opticians are liable for Retailers' Occupation Tax with respect to their receipts from sales of spectacles, eye glasses or lenses fabricated by them, on prescription or otherwise, and sold directly to users or consumers. The total amount of receipts from such sales are within the Act, and labor or service or other items of cost of production are not deductible by opticians in computing their tax. Where opticians make and sell spectacles to oculists or optometrists, and the latter resell the same to their clients for use, then such sales by the

optician are for resale and do not carry a liability for tax.

For example, an optometrist who refracts the eyes by mechanical methods and sells fitted spectacles to a client for use pursuant to such an examination is liable for tax only with respect to receipts from the sale of the spectacles, if such selling price is separately set up and billed to his client. The same ruling applies to the oculist who refracts the eyes by medical methods and sells spectacles pursuant thereto. If either such optometrists or oculists do not sell any spectacles pursuant to examination, or otherwise engage in the business of selling tangible personal property for use or consumption, but merely write prescriptions to opticians, they are not liable for tax. The optician who fills the prescriptions by fabricating and selling spectacles to users or consumers incurs liability for the tax.

Optometrists, opticians and oculists are liable for tax with respect to their receipts from sales for use or consumption of such articles as complete spectacles without examination, sun glasses, solution for cleaning eye glasses, barometers, telescopes or opera glasses, sold apart from the rendering of professional services.

CONVENTION GOLF

The State Medical Society meeting at Rockford holds forth an unusual allure for the golfer. The Golf Committee has arranged for members of the Society to play on the Rockford Country Club course. This is one of the finest courses in the Mid-west; it has been the scene of many notable tournaments, including the Western Amateur; this year the Illinois State Professional and Amateur Tournaments are to be held here. The fairways are watered and the course generally is kept in excellent shape; this, with its picturesque location, running for almost a mile along the west bank of beautiful Rock River, combines to assure the golfer of a wonderful treat. So bring your clubs for one or more rounds of golf.

The Committee have planned suitable prizes for the Handicap Tournament which will be staged Tuesday, May the twenty-first. In addition the Course will be open to members of the Illinois State Medical Society on Monday, May the twentieth, through Thursday, if members wish to play a practice round before Tuesday, or later.

Excellent cuisine is available at the club, at nominal prices, and the men's locker room porch, high above the river offers an ideal spot to rest after a round of Golf.

The Golf Committee chairman of which is Dr. W. L. Crawford, Rockford, Illinois, will be glad to give any information desired.

AMERICAN MEDICAL GOLFERS PLAY IN
ATLANTIC CITY, MONDAY, JUNE 10

The American Medical Golfing Association will hold its twenty-first annual tournament at the Northfield Country Club in Atlantic City on Monday, June 10, 1935.

Thirty-six holes of golf will be played in competition for the seventy trophies and prizes in the nine events.

Trophies will be awarded for the Association Championship, thirty-six holes gross, The Will Walter Trophy; the Association Handicap Championship, thirty-six holes net, The Detroit Trophy; the Championship Flight, First Gross, thirty-six holes, The St. Louis Trophy; the Championship Flight, First Net, thirty-six holes, The President's Trophy; the Eighteen Hole Championship, The Golden State Trophy; the Eighteen Hole Handicap Championship, The Ben Thomas Trophy; the Maturity Event, limited to Fellows over 60 years of age, The Minneapolis Trophy; the Oldguard Championship limited to competition of past presidents, The Wendell Phillips Trophy; and the Kickers Handicap, The Wisconsin Trophy. Other events and prizes will be announced at the first tee.

A. M. G. A. MEMBERS IN EVERY STATE OF THE UNION

Dr. Charles Lukens of Toledo is president and Dr. C. H. Henninger of Pittsburgh and Dr. John B. Morgan of Cleveland are vice-presidents of the American Medical Golfing Association, which was organized in 1915 by Dr. Will Walter, Dr. Wendell Phillips and Dr. Gene Lewis, and now totals 1,100 members representing every state in the union. The living past presidents include Dr. Thomas Hubbard of Toledo, Dr. Fred Bailey of St. Louis, Dr. Edward Martin of Media, Pa., Dr. Robert Moss of LaGrange, Texas, Dr. Charlton Wallace of New York, Dr. Will Walter of Chicago and Charlottesville, Va., Dr. James Eaves of Oakland, Calif., Dr. Chester Brown of Danbury, Conn., Dr. Samuel Childs of Denver, Dr. W. D. Shelden of Rochester, Minn., Dr. Walter Schaller of San Francisco, Dr. Edwin Zabriskie of New York, Dr. Frank A. Kelly of Detroit, Dr. John Welsh Croskey of Philadelphia, and Dr. Homer K. Nicoll of Chicago. The first president of the A. M. G. A., Dr. Wendell Phillips of New York, who played in every tournament since 1915, died on November 16, 1934.

ATLANTIC CITY COMMITTEE

The Atlantic City Committee is under the chairmanship of Dr. Walt P. Conaway, 1723 Pacific Ave., Atlantic City. He will be assisted by Drs. I. R. Beir, John Pennington, Alfred Westney, and Rostin White.

The Northfield Country Club of Atlantic City is described by Chairman Conaway as "certainly one of the most interesting courses in this district. Many championships have been held at Northfield, and I am sure the visiting doctors will be delighted with it in every sense of the word. It has a beautiful club house with every facility ready for the pleasure of the guest."

APPLICATION FOR MEMBERSHIP

All male Fellows of the American Medical Association are eligible and cordially invited to become members of the A. M. G. A. Write the Executive Secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. Participants in the A. M. G. A. tournament are required to furnish their home club handicap, signed by the secretary. No handicap over 25 is allowed, except in the Kickers' (Blind Bogey). Only active members of the A. M. G. A. may compete

for prizes. No trophy is awarded a Fellow who is absent from the annual dinner.

The twenty-first tournament of the American Medical Golfing Association promises to be a happy affair. The officers anticipate some two hundred medical golfers from all parts of the United States and Canada will attend.

MODERN WEAPONS AID PHYSICIANS IN FIGHT ON TUBERCULOSIS

"Fight Tuberculosis with Modern Weapons" is the slogan for the 1935 educational campaign sponsored by the National Tuberculosis Association, the Chicago Tuberculosis Institute and other associations throughout the country, scheduled to begin April 1st.

The underlying principle and aim for this early diagnosis campaign, and the statement that will be featured on all the literature distributed during this month is, "The Treatment of Tuberculosis Must In All Cases Be Based on Diagnosis. Only a doctor can decide whether treatment is necessary, and how it should be carried out." The campaign will also emphasize the importance of early diagnosis, so necessary in the cure or arrestment of the disease.

Medical science has made tremendous strides in the cure and prevention of tuberculosis, and it is timely to inform the public how to avail themselves of these great findings. Today's modern methods of treatment includes collapse therapy (pneumothorax) the importance of the sanatorium and social rehabilitation of the tuberculous patient. This is the basis for the slogan of this year's campaign.

An appreciation of scientific medicine is a major objective of health education and this modern treatment of tuberculosis inspires respect not only for scientific medicine but also for the men and women associated with its advancement. Such fuller, more definite knowledge of the treatment of tuberculosis dispels fear of the disease and prompts the person who may be worried about his health to visit his physician.

Tuberculosis, through the ages, has been surrounded by many deep-rooted fallacies, but in the last fifty years much has been done to discredit these notions. Such educational campaigns as this one have done a great deal in further enlightening the public on the subtleties of the disease, and the importance of scientific medical science.

Campaign posters are available and suggest that medical science is a moving, living enterprise in step with the times. Attractive leaflets explain concisely and authoritatively the main aspects of the treatment of tuberculosis: General treatment, need and purpose of the sanatoria, collapse therapy, and economic and social rehabilitation.

ALTRUISM

The altruist should not be regarded as a martyr, for he is not relinquishing his right to happiness. He has merely learned an adult means of gaining happiness, in place of the egocentric ways practiced by a child.—Prof. John J. B. Morgan, in "Keeping a Sound Mind."

ACTION OF IODINE IN THYROTOXICOSIS, WITH ESPECIAL REFERENCE TO REFRACTORINESS

J. H. MEANS and JACOB LERMAN, Boston (*Journal A. M. A.*, March 23, 1935), point out that the clinical facts regarding iodine in thyrotoxicosis are that it produces an altogether characteristic and specific response, which consists in an amelioration of symptoms and a drop in metabolic rate. This response will occur at any stage of the disease. It appears that the response has no relation to the duration or direction of progress of the disease but merely acts as a check on the intensity of its symptoms. These clinical facts are consistent with the theory that in thyrotoxicosis the thyroid allows the escape of thyroxine to proceed at an excessive rate; to leak, in fact, and that the cells of the thyroid hyperfunction in consequence. Iodine, it is suggested, sets up a temporary obstacle to this excessive outflow; it checks the leakage of thyroxine from the gland. The known facts of iodine and thyroxine content of the gland, blood and urine are consistent with such a theory. The authors believe that so-called refractoriness is apparent, not real. Thyrotoxic patients who are unaffected by iodine are those who are already fully iodinated. They doubt the existence of so-called iod-Basedow. The iodine response is valuable in the management of toxic goiter, both in treatment and in diagnosis, but its fundamental nature must be familiar if it is to be used successfully.

AIDS IN MUSCLE TRAINING, WITH ESPECIAL REFERENCE TO SLING SUSPENSION AND UNDER-WATER EXERCISES

F. J. GAENSLER, Milwaukee (*Journal A. M. A.*, March 23, 1935), is of the opinion that of the many varieties of physical therapy, active exercise probably deserves first place because of its wide applicability and because it calls into play the entire neuromuscular units in a manner approaching normal physiologic action. He describes sling suspension exercises, under-water exercises and the overhead trolley system of exercise. He emphasizes that every case, of whatever type, must be studied carefully and a physical therapeutic program mapped out to meet the individual requirements, and also that the simple measures that he outlines are merely aids in the rehabilitation program.

ACTIVE IMMUNIZATION WITH MENINGO- COCCUS TOXIN

The work of N. S. FERRY, Detroit, and A. H. STEELE, Northville, Mich. (*Journal A. M. A.*, March 23, 1935), demonstrates that certain individuals who are susceptible to the skin test dose of meningococcus toxin can be made immune to this dose of toxin by at least three subcutaneous injections of the undiluted toxin in graduated doses. This immunity can be produced against the toxin of one type by injections of a mixture of toxins of all types. While the results of these tests indicate certain facts in regard to the stimulation of active immunity in man against meningococcus toxin, they do not necessarily signify that an immunity against the

organism can be produced at the same time, although such a condition is true of some soluble toxins and it is not unreasonable to expect the same of this toxin. This method of immunization, however, does suggest a possible means of active protection against the disease itself and is worthy of consideration and further study, especially since it was shown that active immunity against infection with the virulent meningococcus can be stimulated in laboratory animals following prophylactic injections of this toxin. The answer to this question, while of great importance, must of necessity be deferred until such a time as more conclusive clinical data are available.

DO YOU KNOW—

That Hippocrates, 400 B. C., ordered during the pestilence at Athens aromatic fumigation and large fires in the streets?

That in Homer's *Odyssey* reference is made to Ulysses purifying his house with burning sulphur?

That the Romans, amidst their military operations, found time to construct the "Cloaca Maxima" some 2,400 years ago, which not only served for the removal of refuse, but also helped to drain many of the marshes, and constitutes the principal sewer of modern Rome?

That at one time Rome had 14 large and 20 small aqueducts, some of which carried the water from a distance of 50 kilometers?

That during the reign of Tiberius and Nero the *per capita* supply of water was over 1,400 liters a day?

That in Rome between 400 B. C. and 180 A. D. about 800 public baths were installed, among them the "Thermae Caracallae," which alone accommodated 3,000 bathers at one time?

That in the fourteenth century (1345-1351) the "Oriental pest," or bubonic plague, claimed a toll in Germany of over a million lives?

That in Madrid not even a privy existed in 1760; it was customary to throw the ordure out of the windows at night, to be removed by the scavengers the next day?

That in Prussia, during the decade 1751-60, "688 out of every 1,000 children born perished before the age of ten, and that in 1761 50 per cent. of the English population died before reaching the age of 20?"

That William Jenner, on May 14, 1776, inoculated a boy with virus taken from a pustule on the hand of a milkmaid who had been infected by her master's cow; on July 1 this boy was inoculated with smallpox virus without the slightest effect, as Jenner had predicted, and in spite of considerable opposition this method was slowly but surely adopted in all civilized countries?

That vaccination was introduced by Dr. Waterhouse in Boston in 1800, and by Seaman in New York in 1801?

1. From "Brief History of Hygiene and Sanitation," by Geo. M. Kober, M. D., in *Public Health Report*, April 6, 1923, Washington, D. C.

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Man, honest, will take anything.—Ad in a Jacksonville paper.

Original Articles

MODERN DIET AND THE CHILD BEARING PROBLEM

DANIEL THOMAS QUIGLEY, M.D.

OMAHA, NEBRASKA

Question as to whether modern diet has any connection with the dangers of child bearing has long been debated by medical and non-medical men. Past debates have been non-productive since neither party to the discussion has had concrete facts to adduce and the fundamentals of nutrition were unknown. Only recently has come scientific knowledge of the scientific side of food intake. That there has been something wrong with ordinary diets was sensed by many who deal with large numbers of sick people. On all sides diseases appear that have an almost universal distribution. Among these constipation, tooth decay and rickets are the most common. Besides every day disorders appear a class of diseases that though less widely distributed are still linked with errors in diet and which show constant increase in incidence. These latter diseases increase in incidence and further invade the younger decades of life. That doctors as a rule have been incompetent to deal with these diseases is shown by the fact that these diseases attack and kill doctors in the same percentage as they attack and kill laymen. In this group are diabetes, kidney diseases, apoplexies, heart diseases and cancer.

As observation of facts and studies of statistics progress another factor has become important. Especially that more and more women are becoming incapable of bearing children and the need of obstetrical aid in each decade become greater. Despite the fact that American women are given obstetrical aid in the greatest degree and have hospitalized obstetrics in the greatest number, the morbidity and mortality records have gone up year by year. In fifteen years Caesarian section in the city of New York has risen from 0.2 per cent to 2 per cent, or an increase of one thousand per cent. Rickets is a very common disease. Girls with rickets grow up with contracted pelves and other bony deformities so it is easy to see how this state of affairs does operate to increase obstetrical interference and also obstetric morbidity and mortality.

Another side to the problem is that much of the increase and higher death rate connected with

childbirth may not be attributed to purely mechanical difficulties but to bleedings and infections. The baby also shows an increasing incidence to intracranial hemorrhages and an increasing susceptibility to infections and gastrointestinal atony. The latter shows itself as anorexia and constipation. Diseased mothers bearing these diseased children usually suffer in some degree from these same gastrointestinal disorders and in addition show their degeneracy by a lack of ability to secrete enough milk to keep the baby alive. The obstetrician must reckon with the mechanical difficulties of childbirth and the evils that come from bleedings and infections. The standardized and organized obstetrical experts have met the situation by decrying the lack of mechanical skill on the part of the ordinary doctor and have proclaimed the information that mechanical birth troubles may be cured by skill such as specialists possess. This group also avers or implies that infections arise always from external causes and that the cure depends on keeping the offending microorganisms out of the field at the time that the woman is having her child.

Such premises have crept in with the process of evolution. They have come down from a time when the basic principles involved were not understood and mechanical variation and extrinsic infective agents were blamed. Bleedings were included in the unfortunate occurrences associated with the exercising of the necessary force for the delivery of the child.

No one will dispute the fact that the normal woman of child bearing age goes through pregnancy and childbirth as a normal physiological occurrence without undue suffering or danger. This is as true of the human as of any other animal. In the child-bearing age pregnancy is the normal condition for the female of the species. As soon as the suckling of the young is over it is normal and natural for the well woman again to become pregnant. At least fifty per cent of woman's fertile life period is occupied in carrying, and the other fifty per cent in nursing a baby. This is the physiological physical life activity of the normal human female just as it is the normal life activity of the female of any other animal species. The production of young is the dominant female life activity. When we discover a breed of animals in which this function becomes more and more difficult and the

vitality of the young becomes more and more attenuated, then *if it is desirable to continue the breed, the most important thing is to find out what are the factors contributing to the racial decline and the remedies to be applied in an effort to stop the decline and to restore as far as possible the former vitality and smooth functioning of those physiological processes which pass on life from one generation to the next.*

In connection with the human animal the most radical departures from normal have come within comparatively recent years. If we inquire into changes coincident with declining vitality, it will be found that the greatest changes which have occurred will be noted in food intake. Something has happened to food within the last fifty years! With this happening has come an increase in tooth pathology, in diabetes, in gastrointestinal disease, in heart disease, in insanity, in cancer and in obstetrical morbidity and mortality. Along with these changes has come, too, an increased susceptibility to infective diseases, such as poliomyelitis and to the commoner infections as colds. There is too an increasing number of complications, and an increasing number of crippled and deformed and the appearance of a number of new and unusual diseases. Medical care becomes more necessary. Greater attention is paid to this necessity and more discussion as to the ability of the citizen to pay for this care since it increases so rapidly and the hardships attendant on providing it become greater in the average home, and for the average wage earner.

Now many of the diseases mentioned in this list are infections. It will also be noted that rickets is the disease which is of chief interest to obstetricians and rickets is a disease of metabolism, really a failure to grow normal bones. If we assume that foods have been responsible for the bad condition in which we find ourselves then we must conclude that this failure is one which involves a decline in our infection fighting mechanism and also a failure in basic metabolic (not to be confused with basal metabolism) processes. No one will deny at the present time that around 75 per cent. of school children suffer from some degree of rickets. This is established by actual surveys. None will deny that rickets is a deficiency disease. This is an accepted medical fact.

So obstetric difficulties due to lack of normal bony development (rickets) are caused by food

deficiency in childhood. This is not speculation but cold, hard fact. It may be assumed that this part of the problem may be taken care of by attention to the factor involved—provision of the necessary quantity and quality of food and withdrawal of the deficient food which satisfies the stomach but warps and starves that basic architecture of the body,—the bones.

In those other morbidity and mortality factors,—bleedings and infections,—the attention which has been given to extrinsic factors has produced no favorable results. Fantastic rites carried out in some hospitals border on the ludicrous; shaving, scrubbing with vile smelling chemicals, operating under tents, and profound debates as to the superior qualities of red paint or green paint or blue paint in exorcising and paralyzing the microscopic invader from without. A few years ago a St. Louis obstetrician amazed the medical world by suggesting that perhaps the woman who became infected carried her own microorganisms around with her. A little later he demonstrated as one of the offenders an anaerobic streptococcus. While this was a step in the right direction this obstetrician did not follow the idea to its logical conclusion. While he recognized that a woman may carry a "strep" and become infected with it in an open wound, he apparently did not inquire *why* such a woman came to act as hostess to the streptococcus. He evidently considered this condition a matter of accident or of chance and devoted his efforts to daubing the raw birth wound with whichever red or blue paint happened to be in favor at the moment. *In Nature's great plan for the propagation of the race mercurochrome and methylene blue were never considered.* The important question is not, "does the woman carry pathogenic germs around with her?" for all who are below par physically do carry such germs, but, "Why has a human animal been so reduced in vitality that he or she carries in the bodily tissues low grade pathogens which flare into activity on trauma?"

An examination of factors involved shows that the women who come to grief in obstetrical experiences are those who have atypical and abnormal bony development and those who are below normal in regard to ability to resist infections. These women carry around with them chronic infections which light up in an acute way or they may be so reduced in vitality as to be unable to resist such accidental infections from without

which would be harmless for the average healthy woman. Those with rachitic history fall into the preventable class. Those with lessened ability to resist pathogenic invasion by their own or external pathogens are also victims of food deficiency. A check-up on a group will always show a lack of vitamins or minerals or more often both.

Vitamins confer maximum ability to resist infection. These chemical elements have a selective action. Maximum benefits can only be expected when *all* are present in *satisfactory quantities*. We have the so-called "protective group," A, B, and C, but they are more protective when balanced with a proper amount of D. The protective group will protect the bronchial and gastrointestinal mucous membrane, but if one of the group is missing or is present only in too small an amount the protective effect of those remaining will be lost entirely or very much impaired.

Here is one of the stumbling blocks in evaluating the benefit of vitamins in human feeding. In dealing with laboratory animals the diet is always carefully arranged so that the animal is known to receive all vitamins in proper amount, except that vitamin which is the subject of the experiment. In dealing with humans the other part of the diet exclusive of the element under consideration is usually disregarded, of course invalidating the whole experiment. This is well illustrated in the case of Hess (Journal A. M. A., Aug. 26, 1933) where he tested the effect of cod liver oil in a group of children in an orphan asylum in New York. Children taking the regular institution diet were compared with controls in the same institution taking the institution diet plus fish liver oils. Institution diets are well known to be deficient in Vitamins B and C as well as A and D, so without proof that these other elements were present in proper amounts in the diets there could be no value in the experiment. The same principle was in evidence in the work done more recently by Shibley and Spies (Journal A. M. A., Dec. 29, 1934), in which they experimented with volunteer students allowing them to take any diet they wished, having no control whatever over the other elements of food intake. In this case the study was made in connection with colds and as might have been expected proved nothing except that the taking of one vitamin by persons subsisting on diets defi-

cient in other vitamins was of little help. If the other elements in the food intake were carefully checked so that it was known that the students used in the experiment received adequate quantities of minerals and the other vitamins with properly balanced proteins and carbohydrates and fats then there might be some scientific evidence forthcoming as to the value of the single vitamin under consideration by varying its dosage up and down and comparing with controls.

Lack of understanding of the subject as a whole leads to errors in prenatal feeding and consequent lack of resistance in the mother and lack of vitality in the infant. Today many mothers do not have milk and therefore do not nurse their babies. That this is a vitamin deficiency is proven by the fact that 70 to 80 per cent. of these women produce milk freely if given sufficient quantities of yeast or other foods rich in vitamin B. The constipation that afflicts the pregnant woman may also be relieved in most cases by Vitamin B containing foods, and cellulose. The caries which "take a tooth for every child," does this because the calcium intake is insufficient and so the body metabolism robs bones and teeth in the mother to supply the needs of the child. These facts show that a vitamin deficiency and a calcium deficiency exist and therefore in turn exists reduced ability to resist infection. Vitamin C deficiency, affecting as it does the blood vessels, induces a readiness to bleeding. In these cases the walls of the small vessels lack integrity. Discolored spots under the skin produced by relatively light trauma, which are small hemorrhages, are an early sign of C deficiency. The post partum bleeding, the intracranial and other forms of hemorrhage in the infant are symptoms of the same dietary disease. The general deficiency reduces the elasticity of tissues and produces a tear when the enlarged head of the rachitic infant passes through the cervical canal.

On this tear modern medicine bases the local etiology of cancer of the uterine cervix. Cancer, however, is associated with a later stage of the deficiency states under consideration. Experience and therapeutic application have shown plainly that starvation for vitamins A, B and C is common among pregnant women. A calcium deficiency is also known to be practically universal and has been described very well by Bernheim (Journal A. M. A., April 1, 1933). Supplying

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calcium in these cases does no good without vitamin D as without this vitamin the calcium simply passes through unused.

There is practically no vitamin D in diets as commonly used except a small quantity in butter fat and eggs in late spring and mid-summer. In the darker months the average diet is absolutely without a trace of vitamin D. In England three years ago Mellanby and Green experimented with large doses of vitamin A in connection with the prevention of puerperal infection and as a curative measure after the disease had become established. Although the results were startling in their proof of the value of such medication, very little attention was paid to the work. The experiments were carried out with the earlier mentioned handicap, lack of attention to other protective elements in the diet. Had proper attention been given to mineral intake and B, C, and D intake in the same patients the results would have been better and the work might have attracted more widespread attention. (*Journal A. M. A.*, January 31, 1931 Edward Mellanby; Diseases Produced and Prevented by Certain Food Constituents.)

In the work of Mellanby and Green as described in this article, twenty-two cases of puerperal fever showing positive blood cultures for hemolytic streptococci without vitamin feeding, on ordinary treatment, had a mortality of 20 or 92 per cent. A group of fourteen similar cases with positive blood cultures but with one showing bacillus coli in the blood and two showing staphylococcus had but four deaths or a mortality of 28.6 per cent.

As an example of careful scientific animal work we may cite the experiment of Mellanby and Green as described in *The British Journal of Experimental Pathology*, April, 1930, in which they worked with rats to determine the protective qualities of carotene, (Pro-vitamin A). With the animals on basic diets which contained all the vitamins and salts in proper proportions the groups were fed on varying doses of carotene, the first group having none. It was found that not only did the rats on deficient quantities of carotene develop infections but the protective effect was in proportion to the increase in the dosage and the infections found at autopsy in the rats were the same as the common infections in man; lung infections, genitourinary infections, mastoid, tonsil, middle ear and sinus infections.

The great mass of work done in universities all over the world shows this to be true: that A and pro-vitamin A have a protective effect as regards infections. There is no evidence against this except in the cases of such badly controlled experiments as have been mentioned.

In a survey made by the New York Academy of Medicine recently the disease and deaths sustained by mothers in childbirth were shown to be practically in the same proportion in all classes of society. They divided the cases into 1. the wealthy class, 2. the white collar class, 3. the slums. The fact that all three classes experienced about the same per cent. of infections and deaths showed that the error causing the trouble was one which affected all classes of society and from which hospitalization and expert obstetrical attendance did not exempt. The only hygienic error which is so widespread is the error involved in deficient diets. All classes consume too much refined sugar, and too much refined flours. These two deficient foods are deficient in calcium and other minerals, and in all vitamins, though constituting from 80 to 90 per cent. of the calory intake of rich and poor alike. The result is increase of all diseases involving infections, both acute and chronic, and in the bone and brain deformities that come with rickets.

An ideal diet should be one containing 90 to 100 per cent. vitamin containing foods. Actual diet in the average civilized home contains about 5 to 10 per cent. vitamin containing foods. As vitamin B and C are destroyed by cooking, as also in some degree, is vitamin A, practically all civilized humans are acutely in need of these food elements. Houses and clothing shut off the sunshine so all are more or less in need of D.

That vitamin having the most widespread distribution is B₂ or G. As it is contained in meat, milk and eggs and as it goes through cooking temperatures without change it was formerly supposed that a scarcity of this element did not exist in average diets. Sherman, however (*Journal A. M. A.*, November 14, 1931, *Some Recent Advances in the Chemistry of Nutrition*), has shown that there is a very grave deficiency existing in connection with vitamin G in all civilized countries. Sherman calls attention to the well known effects of G in preserving the health of the skin and the gastrointestinal mucous membrane and to the fact that a lack of G predisposes to the changes incident to old age and

states that premature ageing may in some cases perhaps be deferred by an abundant supply of G in the diet.

The question arises, "Why are average diets lacking in vitamin G if it exists in the more common foods and if it survives cooking temperatures?" The answer is that refined carbohydrates in the diet furnish relatively such a large part of the calory intake that all vitamins, as well as salts, are reduced to a dangerously low level. This level is so low that even the most widespread and permanent vitamin, G, is present in starvation amounts. The "optimum" amount of any vitamin is several times the "minimum" amount and that there is practically no "maximum" amount. In the case of fish liver oils, however, there may be associated toxic products which may in very large doses produce bad effects. Vitamins and salts are simply crowded out of the average diet by the non-vitamin, non-mineral, high energy, high calory, refined carbohydrates. On this deficient dietary the average American woman comes into her pregnancy. This is the condition in which she approaches motherhood. In such a sick deformed woman the pain incident to the normal physiological process of maternity is considerably greater than in the normal healthy well fed woman. For the alleviation of this pain this sick woman must have some kind of anesthetic. This is carried into the blood of the baby causing him to take on yet another handicap in his struggle for existence.

A study of food consumed in a large American city should show relative "protective food" values. Values here set forth are practically the same for all American cities: The per annum food supply of the city of New York given by the Food and Drug Bulletin is: "White flour and white bread three billion pounds; sugar, one-half billion pounds; pork, beef, fish, poultry and lard, one billion pounds; white potatoes, one-half billion pounds." Of these foods potatoes contain vitamin C, which is practically all destroyed in cooking. Fish and meat contain G, but this vitamin is not one of the protective group so may be of little account in combating infections. So in this five billion pounds of food there is practically no vitamin protection, and with the exception of the potatoes very little minerals. Against these non-vitamin, non-mineral foods we have vitamin containing foods as follows: bananas,

grapes, oranges, apples, and other fruits and vegetables, rye, eggs, and butter, adding up to one and one-half billions of pounds.

If we subtract the rye which is used de-germinated, and the amount of apples which are eaten cooked, we have around one and one-quarter billion pounds of vitamin and mineral containing foods or around *only 20 per cent. of the entire intake*. In the actual test of clinical practice of men making a study of this problem, (published reports of Lovell Langstroth, Seale Harris, the authors and others) *good results do not become apparent until vitamin feeding is brought up to around 80 per cent. of vitamin containing foods, and further increase in the percentage of high vitamin foods produces better results*. If we include milk in the above it will change the figures materially as the amount used is approximately one and one-half billion pounds, but as it is around 90 per cent. water it can not be compared with solid foods; and as milk contains only a trace of vitamin B and its vitamin C is mostly removed in pasteurizing, its A is very diluted and its D is present for only a few weeks in summer, milk can not be depended on as a high vitamin food. The principal value of milk is as a carrier of calcium.

If we have come into bad times in the field of obstetrics on account of errors in diet which have crowded in refined carbohydrates and have crowded out mineral and vitamin containing foods, then it would seem that the proper and right course to pursue would be to refrain from the deficient foods and to feast on the normal foods which Mother Nature has prepared for us and which have preserved our bodies and minds through thousands of generations of evolution, involving stress, strain and struggle, but which has set us above all other creatures of the animal world. Spectacular improvement may be observed in cases of chronic disease such as cardiovascular disease and gastrointestinal disease by high vitamin feeding, but in obstetrics we have a different problem. Here we must deal with bony changes which have developed from early youth and which are not reversible. The narrow pelvis female will never become normal. Solution of the problem is not altogether in this present generation. Proper care of growing girls today will result in better mothers in from twenty to thirty years hence. Persons who fail in this respect will find more misery and more need for the obstetrician as time

goes by until Nature in her endless task of eliminating the unfit makes reproduction impossible in that particular line. This applies only to the bone changes (rickets) which through the years have been making childbirth more and more difficult.

As regards the other morbidity and mortality factors, help is more immediately at hand. A basic diet which contains for the pregnant woman two quarts of buttermilk or whole milk per day with one or two ounces of yeast per day and a pound of raw fruit or vegetables and three teaspoonsful of codliver oil will give her calcium and vitamin protection which will safeguard the bones and teeth of the unborn baby and the mother against deficiency bleedings and deficiency infections. The uterine tissues are more elastic under such a diet, and as the coming baby is non-rachitic the head is smaller. This tends to childbirth without tears or pathological bleedings. The local cancer etiology is absent.

Persons on deficient diets acquire many and diverse localized chronic infections which feed microorganisms continuously or intermittently into the blood stream and organs. Organs and glands are stimulated or depressed according to the dosage and the chemistry of the offending toxins. This leads to some of the bizarre functional and organic endocrine disturbances of pregnancy. If proper diet is to exert its maximum protective effect all foci of infection must be eradicated as while better physical health will be noted the entrenched fortifications of the enemy will not be carried by a return to normal diet alone. This applies particularly to infected gums and teeth, infected tonsils, diseased gall bladders, colitis, diseased sinuses, diseased cervical canals and genitourinary infections.

It has been determined that forms of polyneuritis in pregnancy are amenable to treatment with yeast or other carriers of vitamin B. Progressive physicians are so treating these cases. The interpretation is that the disease is a B deficiency and that B feeding is all that is called for in the treatment of the patient. The facts of the matter are however quite different. There is in these cases a *general* vitamin and mineral deficiency with the B starvation giving the predominant symptoms. The treatment should be a diet which contains an abundance of other vitamins as well as vitamin B and minerals.

The error encountered is the most common error in modern dietary science. Physicians become sold on the beneficial effects of one therapeutic measure, . . . cod liver oil, yeast, mineral mixtures, whole grains, citrus fruit juices, or leafy vegetables and disregard other elements most necessary in a properly balanced diet. Administration of viosterol or fish liver oils to pregnant women without paying any attention to calcium intake is common. This provides vitamin D with the power of mobilizing calcium but as it provides no calcium to mobilize it invades and robs whatever stores the mother may have in her teeth and bones leaving her with thin fragile bones which subsequently become fractured on relatively light trauma.

Fractures have assumed a major position in medical literature during the last two decades. Fractures of small bones such as fingers and toes and of arms, legs, ribs, vertebrae, and skulls have increased and have healed in a less satisfactory manner. The subject has been of special investigation by both the College of Surgeons and the American Medical Association.

In the reports from both of these organizations the emphasis has been put on bettering anatomical knowledge and producing better mechanical support for the injured member. Yet no attention has been given to preventive measures looking to the growing of better stronger bones which might compare favorably with the bones of our great-grandfathers or with the bones of other animals.

In considering the diets of pregnant women, attention should be given to one mechanical factor usually overlooked, that involving bulk or roughage in the food intake. The normal mechanical stimulant to intestinal epithelium is undigested meat fiber and cellulose. In the case of the average woman there is a lack of nerve tone and normal secretions in the gut due to lack of vitamins and minerals but there is also a lack of that mechanical stimulation which through our whole period of evolution has induced peristaltic action.

Three things necessary are 1. good healthy nerve and muscle tone; 2. normal secretions from the mucous membrane of the intestine, and 3. bulk or roughage which produces the normal stimulus. Absence of all three of these necessary factors in a greater or lesser degree is why the

modern woman has been defined as "a constipated biped with a backache."

Requirements for a return to normal, so far as the child bearing woman of today is concerned, are mainly dietary, and involve daily feeding of *all* of the vitamins and of minerals with a sufficient amount of cellulose and other roughage to promote natural bowel function.

During the next few generations those who by design or accident best fulfill these requirements will survive and continue to procreate their kind. Those who allow their perverted tastes to lead them to the unwise consumption of slimy sweets and refined nitrited flours of the modern confectioner, baker and miller will struggle through a few medically assisted obstetrical experiences passing on weakness instead of strength to the succeeding generation until that particular biological line is exterminated.

Practical application of scientific knowledge is important. Humans even of the so-called civilized nations live mainly by their emotions rather than by their reason. Basic causes of things and evolutionary trends of thought concern the average doctor very little. He removes a diseased tonsil or appendix with great skill and finger dexterity but he does not inquire why the tonsil or the appendix became diseased or why such a disease is so common, showing skill and training in the lower brain centers but a lack of functional activity above the ears. In a bad thinking world doctors are our best thinkers but they fall far short of what they should be when it comes to the practical application of available scientific knowledge. The average doctor knowing all the necessary basic facts regarding foods will consider his duty done when he arranges a proper diet for his child bearing woman a couple of months before her confinement when in order to put up her best fight against her ever present enemy, infection, she should not only be protected during her whole term of pregnancy but during the period between pregnancies and in her girlhood when her endocrines are being built up and her bones being formed.

We have heard a good deal about the "superman" and his coming. He will never arrive until we first have a "superwoman" to give him proper birth and proper nourishment.

Medical Arts Bldg.

THE PRESENT STATUS OF OCULAR SURGERY

OSCAR B. NUGENT, M. D.

From the Ophthalmic Department of the Chicago Eye, Ear, Nose and Throat Hospital

CHICAGO.

Generally speaking, ocular surgery of today may be said to be at its highest peak of development, yet we find many operations in use today which were described many decades ago, although most of them have been modified and improved thereby widening their fields of usefulness. On the other hand many newer operations complementing and even supplanting these older operations are being described for similar conditions, and these newer ones will probably be in use for several decades to come.

Yet, with all the modern instruments and new physical agents which have been added to our armamentarium, we find eye conditions which are baffling from a surgical as well as from a medical standpoint, despite the fact that hundreds of research workers are devoting much time to these perplexing problems. We are still groping in the dark along some lines, but still hoping that out of continued effort will come a solution, surgical or otherwise.

In preparing this thesis, the author has been guided by a digest of the literature on the subject, published within the last two or three years, supplemented by his own practical experiences in this country and his research work along this line in Europe and India.

Anesthetics: Many new local anesthetics of a synthetic nature have been brought out in recent years to displace the use of cocaine, and recently a new anesthetic has been described which takes the place of a general anesthetic. It is called avertin and is administered per rectum. The dosage is from 0.06 to 0.09 gram per kilo of body weight. A quarter of morphine is given an hour before the operation and the avertin is administered a half hour before. This produces a narcosis which lasts from one-half to two hours.^{1,2}

Ulcer of the cornea: Paracentesis of the cornea for impending perforation of a deep ulcer has been practiced many years, and the idea has been brought up to date by the use of the tre-

phine³ recently described for the treatment of serpiginous ulcers. A very clever method for the surgical relief of serpiginous ulcers has been set forth in an article on delimiting keratotomy in the path of the oncoming ulcer.⁴

The author has used the paracentesis idea by cutting the cornea at the bottom of the ulcer and placing a conjunctival flap over it in cases of impending perforations.

Cataract: At present our attention is focused on the comparative value of the extracapsular versus the intracapsular operation.⁵ While there has been a turn toward the intracapsular operation in the minds of most of the more outstanding eye surgeons, we find that still many surgeons adhere to the extracapsular method, most of them with their own modifications,⁶ both in this country and in Europe.⁷ The intracapsular operators are practically divided into three groups: Those still doing the Smith operation; those doing the vacuum method; and those who are extracting the lens by means of forceps. Of the three groups, the latter is the most numerous.

The removal of a cataractous lens by the vacuum method has its advantages in that fewer capsules are broken than in any other manner. Its disadvantage lies in the requirement of considerable machinery and preparation to do the work. The technic has been modified by different operators,^{8,9,10} but the operation will probably not become very popular among a large group of ocular surgeons until the machinery and its technic have been greatly simplified. This has been done to some extent.^{11,12} In the opinion of the author this is the best operation yet described for the removal of cataract.

Extraction of the lens in capsule by means of forceps has become quite popular with the ocular surgeon throughout the world because of its simplicity. Only one special instrument is required and that is the special type of capsule forceps which the individual operator prefers.¹³ There should be no difference in the final results whether a cataract has been extracted by the vacuum method or removed by the use of a forceps.¹⁴

Fewer capsules are broken by the vacuum method than by the use of forceps.¹⁵ It would appear that the percentage of broken capsules which is, at best, about 40% with a forceps de-

livery has already been reduced to its minimum.^{16,17}

It is the author's opinion, based on personal experience and a study of the tabulation of the various cataract operations that are presented in the literature,^{18,19,20} that the intracapsular operation is by far the best type of operation to produce the best results.

The removal of a senile cataract by means of the diathermy or high-frequency current which coagulates the lens causing it to adhere to the applicator or electrode²¹ has recently been described²² but so far it is not indicated that it will be a popular form of cataract extraction.

Most operators use a cataract knife for the incision which is pretty generally made in the same way. Seven years ago in Marseilles, France, an operator demonstrated to the author a peculiar type of incision which I believe is worth mentioning here and it has recently been described in literature,²³ and that is the use of two keratomes, cutting away from one another in making the incision.

The usual method of closing the wound after a cataract operation is by suturing the conjunctival flap back to its proper position. Some, however, prefer different types of closure.

The corneal conjunctival suture²⁴ seems to have reduced the degree of astigmatism, common after cataract extraction. There are other types of wound closure which have been described as having brought better results,²⁵ while some prefer using the conjunctival bridge alone or with sutures.²⁶

Contact glasses have been used following a cataract operation²⁷ and after plastic surgery of the cornea²⁸ with apparent good results. The fitting of contact lenses is a simple procedure after one has mastered the technic.²⁹ The use of contact glasses will probably be limited to extreme cases as the wearing of them is not entirely without some discomfort.

Detached Retina: The greatest of the more recent operative procedures coming to our attention have been the various operations growing out of the idea of cauterizing the hole in the retina for its detachment. This was described many years ago but of recent years has been put into practical effect by an oculist in Switzerland.³⁰ It is said:³¹ "Whatever may be the final

judgment of Gonin's operation, it has brought hope to the profession."

From the Gonin operation for detached retina there has developed the Guist operation. In this operation the reattachment of the retina is accomplished by cauterizing it with chemical after the sclera has been trephined.³³ It would appear, however, that better results have been obtained from a more recent type of operation for detached retina—the electrocoagulation of the choroid,³⁴ and according to the literature,³⁵ it would appear that this is the most popular operation for detached retina.³⁶

The Walker method consists of cauterizing with individual needles which are left in until the operation is completed,³⁷ and this is the author's operation of choice because of its excellent results. Gonin has reported good results with this newer type of operation.³⁸

Electrosurgery: One of the later methods of cutting is the so-called electrosurgery. It has been adopted by the general surgeon as well as the special surgeon, including the eye surgeon,³⁹ and it has proven to be of great value in certain diseases of the lids and adjacent parts.

Foreign bodies: The removal of intraocular foreign bodies through the anterior segment of the eye, as described by Haab, forty-two years ago, is still the operation of choice.⁴⁰ There is danger of detachment of the retina if the foreign body is removed diasclerally.⁴¹ But in case it is necessary to remove the foreign body in that manner, it has been the author's custom to cauterize the retina at the point where the foreign body is taken through it, after the fashion of Gonin's operation for detached retina.

Glaucoma: Each operation, described and used by the different operators for the relief of glaucoma in its various stages, has its merits, and in order to secure the best results, it is necessary that the operator be well versed in the technique of the operation he is using.⁴²

The operations most commonly described and used for glaucoma are: the iridectomy; the Elliot trephine of the scleral-corneal margin, which was described and performed in America 22 years ago by Col. Elliot, of England, and is yet the operation of choice by many outstanding ophthalmologists;⁴³ cyclodialysis,⁴⁴ introduced by Heine in 1906;⁴⁵ the iridosclerotomy or La Grange operation, still being used by many; the

iris inclusion operation, or what is called the iridotosis operation and strongly advocated by some.⁴⁷ The author prefers the latter operation for glaucoma simplex.

An operation, combining all the advantages of the various filtering operations for glaucoma, was originated by Mausch. Much of value has been claimed for this operation.⁴⁸ It would be difficult to say which is the operation of choice. The iridotosis is closely adhered to by some;⁴⁹ the trephine by some;^{50,51} while still others prefer iridectomy.

Keratoplasty: The possibilities of substituting clear cornea from one eye, freshly enucleated, for scar tissue on another cornea which obliterates the vision, has been the subject of much intensive research and experiment for many years. Recent experimentations, however, have given some hope.⁵² Transplantation of the cornea was successful in 35% of the cases in experiments with animals.

Other operations on the cornea, such as removal of scars from corneas which are free from infections, have been described and performed with success.⁵³ The author has been using a method for removing the scar by excision and treating the eye three or four times daily with ultraviolet until healthy epithelial cells have been well established over the denuded area. This has given ideal results.

Transplantation of the cornea by using a conjunctival flap has also been reported successfully performed.⁵⁴

Pterygium: Pterygium has recently been removed or its growth arrested by electro-coagulation but the operation of McReynolds still seems to be the operation of choice, and a description of this operation was recently abstracted from the Russian Literature.⁵⁵

Evisceration and Enucleation: Whether to eviscerate or enucleate, when an eye must be removed, is quite a personal problem.⁵⁶ Sometimes enucleation is performed where evisceration might possibly have proven better, but the eye is required for laboratory purposes. In evisceration the use of some type of sphere of glass or gold, or the bone spheres of Guist are recommended.⁵⁷

When the latter operations are successful, they are ideal, as they give more of a natural movement to the artificial eye. Much can be and has

been said concerning the proper operation with reference to the use of an artificial eye following such an operation.⁵⁸

Plastic Surgery: With our present high standard of sepsis and improved suture material, plastic surgery and ocular repair have reached quite a high state of perfection.⁵⁹ Commendable work has been done on the necessary repair of injured and otherwise distorted lids.⁶⁰

Ptosis: Many operations have been described for this stubborn condition in years gone by, some of which are still in vogue. The author has had some very satisfactory results with the Machek operation.⁶¹ A method of correcting ptosis by the use of muscle fascia has been reported⁶² with good results.

Myopia: The removal of the crystalline lens from a myopic eye, especially when the lens is not cataractous, seems to be quite a radical move; however, this is perfectly justifiable from the results that have been obtained in this procedure.⁶³

More of this type of operative work is being reported in the literature.⁶⁴ The complication that the ophthalmic surgeon dreads and rather looks for in this instance is detached retina, but, as has already been said, recent advances in the technic and results of the operation for detached retina have given us more hope in coping with this complication.

Strabismus: There are three surgical principles upon which strabismus can be corrected; the shortening of the muscle on the deficient side; lengthening the muscle on the other side; of the use of another muscle in the form of transplantation.

The old method of shortening the muscle on the deficient side is to advance it or sew it up further on the eyeball, thereby giving it a better purchase upon the globe; but a clever way of shortening the muscle is by sewing a tuck in the muscle, and this operation has gained much favor in the last few years. An ingenious way of forming tucks in a rectus muscle has recently been described.⁶⁵ It is accomplished by looping the dividend strands of the rectus muscle around a non-absorbable material, which is later removed. Different operators describe various methods of performing the tuck.⁶⁶

Tucking is recommended by some⁶⁷ as being the safe operation for this condition.⁶⁸ A

method of cutting out a piece of the muscle and attaching the muscle back to the eyeball⁶⁹ has recently been described.

Setting the strong muscle back on the eyeball to lessen its activity, known as the recession operation, is not a new operation but has received somewhat of a revival in recent literature,⁷⁰ and the only point of difference among operators who use this technic seems to be in the manner in which the muscle is attached to the eyeball.^{71,72} The author much prefers this latter operation and has used it for several years with good results.

Surgery of the lacrimal sac: Cases of purulent dacrocystitis are best dealt with by either removing the sac or by some form of drainage into the nasal space. Perhaps for general consideration, the extirpation of the sac is by far the best. There are, however, some cases which respond very satisfactorily to nasal drainage. This type of drainage can be accomplished by reaching the sac by two different routes: The external route (Toti operation or some of its modifications), and the nasal route (The West-Polyak operation).

Operations by the external route^{73,74} are usually done under considerable difficulty because of the excess flow of blood from the various small vessels which cannot be successfully clamped. This can be nicely taken care of by using a blood suction canula⁷⁵ which carries the blood away from the field of operation. A dextrous operation is that performed on the nasal duct.⁷⁶ This is quite an old operation described in 1893.

One of the newer operations is the transplantation of the lacrimal⁷⁷ sac which has been reported as giving good results.

Summary: It is the opinion of the author, after several trips to Europe visiting most of the large eye clinics there, and two research trips to India, that ocular surgery today is at its highest. It is not the author's intention to convey the idea that the surgeons of the present day are superior in their work to those of yesterday, but on account of the vast amount of literature, describing practical and research surgery the surgeon of today can gain a wider, better knowledge of what is going on in the surgical world than was possible in years gone by.

The most outstanding advances in ocular

surgery have been in those operations recently devised for detachment of the retina, and the trend of the ocular surgeon toward the intracapsular extraction for cataract. Too, perhaps, the recent operation for the relief of lacrimal sac affections.

New Instruments and Appliances: A simple mention, without comment, will be made here of new instruments and appliances which have recently been described for use in ocular surgery.

Guist bone spheres to preserve the contour of the eyeball after evisceration.⁷⁸

Stanculeau-Torok-Elschnig⁷⁹ forceps for the removal of senile cataract in capsule.

The author's cataract utility forceps,⁸⁰ superior rectus pick-up forceps,⁸¹ and the oral valve and modified Green suction cup,⁸² for the more efficient control of vacuum in the vacuum method of removing cataracts.

Fisher's new suction⁸³ pump for vacuum cataract extraction.

Castroviejo's twin knives for keratoplasty,⁸⁴ and knife for ophthalmic surgery.⁸⁵

Hosfords' and Hick's two improved instruments for use in the O'Connor cinch shortening operation.⁸⁶

Smukler's cul-de-sac forceps.⁸⁷

Kirby's blood suction cannula for use in lacrimal sac surgery.⁸⁸

Banner's enucleation snare.⁸⁹

Verhoeff's instrument to simplify the insertion of corneo-scleral conjunctival sutures.⁹⁰

Ebert's new suture forceps.⁹¹

Dimitry has made a new vacuum grasping instrument for removal of cataract in capsule.⁹²

Wilmer and Price have a new retractor for the Kronlein operation.⁹³

Robertson has another O'Connor instrument, the simple suture needle for the O'Connor cinch shortening muscle operation.⁹⁴

Jameson describes the Schaaf forceps for the removal of foreign bodies in the eye.⁹⁵

Green has described a new automatic trephine instrument.⁹⁶

Edwards has described a new modified cataract knife.⁹⁷

Ponton describes a new metal instrument rack.⁹⁸

McCool has added a needle to the end of the various types of capsule forceps.⁹⁹

Cruikshank has described a new lid clamp for lid operations.¹⁰⁰

Schwartz has invented a new tip for the new electro magnet.¹⁰¹

Stieren describes a new sclertome.¹⁰²

Spaeth describes a new needle holder for cataract surgery.¹⁰³

Spears describes a new instrument for the shortening of an extraocular muscle.¹⁰⁴

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THE BENIGN MELITURIAS

THOMAS D. MASTERS, M. D.

SPRINGFIELD, ILL.

The significance of a reducing substance in the urine should always be determined accurately and as promptly as possible so that the patient may be saved unnecessary treatment or delay in the treating of true diabetes. In clinical practice the recognition of saccharin urine is accomplished by the use of the various copper tests. There are four groups of conditions in which the urine may produce a positive qualitative test with these solutions. First—Mucin and glycuronic acid are occasionally present in sufficient quantity in the urine of healthy individuals to reduce Benedict's solution. These substances as well as uric acid and creatinin in concentrated urine will give a positive reaction with both Fehling's and Haines' solutions. Second—The elimination products of certain drugs such as chloral hydrate, chloroform, copaiba, acetanilid, benzoic acid, morphin, sulphonal, acetylsalicylic acid and the salicylates when present in unusual concentration will also give a positive test. Other drugs by means of entirely different actions will produce the same result. These are curare, phloridzin and epinephrin.

Certain constitutional disturbances may cause a melituria. About 20% of cases of primary hyperthyroidism are associated with glycosuria frequently difficult to distinguish from that of true diabetes. The glucosuria of acromegaly or gigantism (eosinophil adenoma of the anterior lobe of the pituitary) is in many instances indistinguishable from that of true diabetes. Five

of the twelve cases of pituitary basophilism (basophil adenoma) recently described by Cushing were characterized by a melituria. Injury to the brain following trauma, hemorrhage and infectious processes is frequently associated with glycosuria. The famous sugar-puncture experiment of Claude Bernard demonstrated a center for carbohydrate regulation in the medulla oblongata and the work of Aschner, Bailey and Bremer and others shows that it is highly probable that similar centers are located in the hypothalamus, corpus striatum and perhaps the cerebellum.

Alimentary glycosuria implies the false assumption that upon taking a larger amount of sugar than just sufficient to cause glycosuria all the surplus sugar would pass into the urine. The accurate work of Woodyatt shows that the more sugar taken the more is retained and utilized by the non-diabetic individual. I believe that these instances of so-called alimentary glycosuria are simply low-grade renal glycosuria. I have placed three normal individuals on diets sufficiently high in carbohydrate to produce nausea and vomiting without causing glycosuria. But in response to the glucose tolerance test there does seem to be a group of cases that might be called alimentary hyperglycemia. Here the blood sugar concentration rises rapidly to abnormal heights and then promptly returns to a normal level. This response is often seen in hyperthyroidism and it appears to be due to a delay in the carbohydrate storage and utilization mechanism.

About 90% of pregnant women show traces of sugar in the urine sometimes during gestation. The glycosuria may become manifest during the first month and usually disappears after fasting. The condition is scarcely to be distinguished from renal glycosuria. Lactose is rarely, if ever, found during gestation but may appear in the urine during lactation. The frequency of a simple glycosuria during pregnancy makes the diagnosis of the rarer case of true diabetes more deceptive. But the cause of the melituria should be definitely established because of the devastating effect of pregnancy upon diabetes mellitus. Nor should the effect of dietary restriction upon the glycosuria of pregnancy be minimized for in this condition a fasting acid-

osis even to the point of toxic symptoms may be easily produced.

The effect of disturbed emotional states on diabetes is well known. Benign and transient glycosurias have also been observed following this type of stimulation in non-diabetics. Schultze and others have reported cases of mental disease in which the amount of glycosuria is dependent upon the degree of depression, being greatest in the fear psychoses. Bohn and Hoffmann have shown that both hyperglycemia and glycosuria may be produced by pain. Cannon and others have clearly demonstrated that excitement and fear cause glycosuria in cats. It is dependent upon hyperglycemia due to stimulation of the adrenals secondary to splanchnic stimulation and does not occur in adrenalectomized cats.

The fourth group of conditions which may complicate the diagnosis of diabetes by the fact that they produce a positive test with the copper solutions includes the physiochemical anomalies in which sugars other than dextrose are excreted in the urine. The usual reagents do not discriminate between glucose, lactose, levulose, the pentoses or other reducing carbohydrates present in normal urine. When more than thirty grams of lactose is ingested it is apt to appear in the urine and the lactosuria of lactating women shows how completely unassimilable this polysaccharide really is. In infants lactose is broken down into glucose and galactose but in adults there is a diminution of this function. Levulosuria may occur after this sugar has entered the body through the alimentary tract. There is a special alimentary levulosuria occurring in the presence of pathology of the liver parenchyma, such as hepatic cirrhosis, catarrhal jaundice, etc., which has been applied as a test for hepatic function. The true chronic levulosuria is probably due to a lowered renal threshold specific for fructose and occurs when this sugar as such or as a constituent of other carbohydrates, for example, sucrose, is taken up in the food. Alimentary pentosuria is said to follow frequently the ingestion of large amounts of fruit but chronic "essential" pentosuria occurs very rarely. Marble reports but three cases among 9,000 consecutive cases of melituria. Following ordinary mixed meals there is an increase in the sugar elimination. This glycouresis is thought to be due to foreign, partly or wholly unusable,

carbohydrate materials present in various foods or the artificial decomposition products resulting from cooking or canning. The escape of such miscellaneous carbohydrates into the urine of course has nothing to do with the main carbohydrate metabolism but sensitive copper reagents may be reduced by these sugars and they should be recognized. Insulin has no effect upon them.

Renal glycosuria is a condition bearing a variety of titles such as, renal diabetes, diabetes innocens, orthoglycemic glycosuria and many others. Likewise it is variously defined. Joslin has set up an arbitrary standard demanding among other things that the urine must always contain glucose. Thus he includes only the cases in which the renal threshold is well below the level of the fasting blood sugar. I believe that the diagnostic criteria of renal glycosuria may be simply expressed as follows:

1. A glycosuria in which the concentration of glucose represents a constant per cent. of the glucose content of the diet.

2. Normal blood sugar levels in the presence of glycosuria. By the first is meant that the ingestion of increasing quantities of glucose may be accompanied by increasing quantities of sugar in the urine but regardless of the intake there will be no sharp or sudden break in the excretion curve. Of course, the renal glycosuric must be able to store and utilize carbohydrates normally as demonstrated by the respiratory quotient and there must be no progression towards true diabetes at any time.

The incidence of renal glycosuria varies greatly depending upon the definition and the degree of care with which suspected cases are studied. In this country it is considered to be rare but in Scandinavia where the subject has been most intensively studied it is by no means uncommon. Falta in Vienna reported 85 proved cases seen in his clinic between 1922 and 1930. In the past three years I have seen eleven cases exclusive of the glycosurias of pregnancy. Seven of these had previously been treated or were suspected of having diabetes mellitus. Five had used insulin for from one to five years.

There have been many attempts to divide renal glycosuria into various types. Somewhat after Malmros the following may be set forth:

1. Continuous renal glycosuria.
2. Cyclic renal glycosuria.

3. Renal glycosuria with pathological alimentary hyperglycemia.

4. Glycosuria of pregnancy.

5. Glycosuria of uncertain nature.

There is no recognized pathology for renal glycosuria. The etiology is likewise unknown. Hjarne claims that it is inherited as a monofactorial dominant character. I have seen one proved case in which the patient's three children all have asymptomatic glycosuria. The physiology of renal glycosuria awaits a thorough knowledge of carbohydrate metabolism. It may be that in the renal glycosuria there is simply a lowering of the level of kidney permeability to sugar. It has been suggested that hyperglycemia is prevented normally by the absorption of sugar by the tissues and liver glycogenesis comes into play after the tissues have reached their holding capacity. Folin and Berglund have suggested that a lag in glycogen formation might result in undue strain on the kidney cells and cause them to employ their excretory function to lower the concentration of absorbed glucose. The suggestion that such a strain has preceded the excretion of sugar is strengthened by the fact that once excretion has begun it does not cease until the concentration has fallen well below the threshold.

Text-books have little or nothing to say relative to the symptoms of renal glycosuria. It is true that most cases are discovered in the course of a routine examination but I do not believe that this is because the condition lacks a fairly definite symptomatology. The most striking feature is the typical nervous, emotionally unstable character. This is aggravated by periods of weakness and mental and physical exhaustion. These patients are usually underweight in contradistinction to the obesity so frequently associated with diabetes mellitus. A history of long standing asymptomatic and untreated glycosuria in the family is occasionally available.

It is obvious that the danger in making a diagnosis of renal glycosuria lies in the confusion of this condition with early or mild diabetes which without adequate and prompt treatment will increase in severity. In most instances the diagnosis should be positive and not depend upon exclusion or excessively long periods of observation. This may be accomplished by a careful history and physical examination to rule out the other non-diabetic causes of melituria

such as hyperthyroidism, pituitary or hepatic disease. By proving the reducing substance to be fermentable and capable of rotating the plane of polarized light 52.8 degrees to the right. By a normal or subnormal glucose tolerance curve. Woodyatt considers the power to burn glucose under an increasing supply a good criterion and places doubtful cases on graded iso-caloric diets each until an excretion level has been established. With all blood sugar determinations within normal limits, a curve plotting the daily glucose excretion that does not show a sharp break speaks strongly against diabetes mellitus. This evidence may be augmented by demonstrating a glycosuria refractile to insulin. The slide will illustrate this test-out on a renal glycosuric who had been treated as a diabetic for seven years and had taken insulin for three years.

Slide Day	"G"	Calories	Urine Sugar	Blood Sugar	Insulin
1	200	2137	4.2 gm.		
2	200	2137	4.6 gm.	0.09 gm.	
3	400	2154	11.2 gm.		
4	400	2154	11.7 gm.	0.08 gm. 0.10 gm. 0.11 gm.	
5	400	2154	11.5 gm.		
6	200	2137	3.2 gm.		5-0-5
7	200	2137	3.6 gm.		5-0-5

Because diabetes so far exceeds in frequency all other causes of melituria and because of its damaging potentialities all cases in which this type of evidence is not available or straightforward should be treated as diabetics [for many years] until Time establishes the true diagnosis.

Renal glycosuria usually requires no treatment at all. To place these individuals on diabetic management does real damage, both psychic and physical. When a renal glycosuric is forced to be on a restricted diet, as, for example, post-operatively, it is important to remember that a true ketosis may develop. Allen and Vanzant have reported this complication in several cases and here, as well as in the glycosurias of pregnancy, the acidosis may be sufficiently severe to produce toxic symptoms. While in this respect renal glycosuria again imitates diabetes, the mechanism is different and the ketosis may be promptly relieved by increasing the intake of carbohydrates and fluids.

SUMMARY

1. There should always be an attempt to explain the cause of a reducing substance in the urine.

2. Renal glycosuria is not so rare as is commonly supposed.

3. There is a definite danger in ignoring the melituria associated with pregnancy.

4. There is a suggestive symptomatology for renal glycosuria and usually the condition can be promptly diagnosed.

5. Severe ketosis may complicate renal glycosuria.

107 S. 5th Street.

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DISCUSSION

Dr. Ralph McReynolds, Quincy: Glycosuria is a very common disorder and its portent is often either underestimated or overestimated. Classical diabetes is easily recognized. Symptomless glycosuria is frequently found accidentally, that is, through routine examinations, insurance examinations and examinations for conditions other than diabetes. Cammidge reported that in a series of 1,200 cases showing sugar in the urine about 400 were symptomless. Of this 400, 100 had a persistent glycosuria and 250 had a hyperglycemic blood sugar curve after a test meal of glucose. The prognosis in these symptomless cases is usually good. However, as Dr. Masters has well stated, we should consider all glycosurias as possible diabetics until proven

otherwise. All the glycosurias with a fasting blood sugar above 0.11 per cent. should be considered as almost certain diabetes. In some of the difficult and borderline cases one of the most important things is the frequent repetition of blood sugar determinations and urinalyses. Repeated fasting sugars over weeks or months, while rarely necessary, are always helpful. Threshold determinations should be made in cases of glycosuria showing a glycemic tolerance test that is abnormal.

As to renal diabetes or renal glycosuria I think we can not be too careful in making the diagnosis. It has not been my experience to observe there were any outstanding symptoms in renal glycosuria. However, I am pleased to note Dr. Master's impression in this regard. The renal threshold varies in health and in disease; young diabetics have a renal threshold around 0.14 per cent.; elderly diabetics may have a renal threshold of 0.3 per cent. After making a diagnosis of renal glycosuria we should not dismiss the case but should check and double check.

THE CLINIC HABIT

CHARLES H. PARKES, M. D.

CHICAGO

At President Roosevelt's Conference of November 14, 1934, there was an apparent indication of a recognition of the fact that a breaking down of the morale of the doctor by any scheme whatever would be unwise and would tend to lower permanently his efficiency, with the result of decreasing his enthusiasm for and ability to continue medical research.

The public must be made conscious of the fact that the doctor is primarily an idealist and an individualist. He is influenced by the traditions which have built up the high standard of medicine, which are based fundamentally on the care of the sick under every and all conditions, irrespective of the remuneration involved. It is natural, however, for him to expect from the public, for his industry and sacrifices, that fairness which will enable him to carry on in his endeavors without the serious handicap of anxiety for the support of himself and his family. There must develop on the part of the public a cooperative spirit which will assure to the doctor a fair remuneration for his services, if he is to continue to give his best efforts, only possible when freed from the worry of an uncertain livelihood.

Though it is true that a large percentage of

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people are far too careless about their physical well-being until sickness arrives, it is also a fact that then the individual's most active interest usually focuses on a cure, and a cure he must have.

If nothing more has been accomplished by our persistent efforts to educate the people in health matters, we have succeeded in acquainting them with the fact that it is and has been only by the untiring, unselfish and laborious delvings in research by the medical profession that progress in the prevention and the cure of disease has been accomplished.

The wise among those in the Administration are recognizing this, and are awakening to a realization that any scheme for economics which would hamper progress in medicine, and thus increase the incidence of disease and lessen the opportunities for its cure, sooner or later would meet with universal disapproval and opposition.

Thought directed along the channels of difficulties in the present medical situation discloses the fact that a large number of our patients able to pay, and those temporarily financially embarrassed, are diverted to the Clinics, where medical care costs the patient little or nothing. Here it is that the "Clinic Habit" is introduced, nurtured and becomes pernicious. The individual thereafter expects and receives all medical care practically free.

A few statistics are of interest: From their records of August of this year about fifty-five hospitals and clinics in Chicago reported to the Council of Social Agencies of this city as follows: ("Statistics." Vol. 1, No. 9, Sept., 1934, p. 30. Published by the Statistical Bureau, Council of Social Agencies of Chicago. Local Representative, Children's Bureau. U. S. Department of Labor.)

IN PATIENT SERVICE		OUT PATIENT SERVICE	
Total Patient Days..	246,790	Total Visits	192,835
Free Patient Days..	175,098	Free Visits	134,006
	71 per cent.		70 per cent.

Pay from patients includes all remunerations for service from 25 cents up, and in the free list none are included where any remuneration, however small, is forthcoming.

For the year ending September 30, 1934, 13 non-government public service clinics reported a total of 971,000 visits—70 per cent. free. (See page 24 of the same issue of the publication, as above.)

Three clinics with organized maternity home services made 4,800 deliveries in the homes.

Included in the services of these clinics were 33,000 x-ray films, 2,800 x-ray treatments, and 3,500 fluoroscopies. Two hundred and seventy thousand prescriptions were filled, of which 207,000 were supplied free.

Doctors provided over 4,000 hours of free service each week, or more than 200,000 hours yearly.

Conspicuous here are the social workers, who are entering the picture in ever increasing numbers. To most of us the clinic means "cheap and free treatment of cases," where of necessity a social worker is needed for investigative purposes to determine whether or not patients are deserving of free treatment.

True enough, clinics must be, but it is equally true that clinics have a limited place in the big picture of the practice of medicine.

With the social worker behind the steering-wheel of Emergency Relief Administration, as now pertains in Chicago, and probably all over the country, private practice is being driven to the clinics in ever increasing numbers, corresponding to the ever increasing numbers of social workers. Who believes that many will return as private patients, and be cured of this clinic habit? Only by energetic and continued efforts on our part will we regain and retain that personal relationship between the patient and his physician which is the only safe foundation for the practice of medicine. To attain this goal, the clinic habit must be eradicated.

Now that confusion in the relief situation seems to be coming under control, the time has come to sound a note of warning to the people that the social worker is fast assuming the position of the intermediary between the doctor and his patient. The medical profession must never lose the dominant place in the care of the sick, and it is our job as doctors to seek to enlighten the public regarding this menace to its welfare, so that with the cooperation of the public and the medical profession the proper status of the doctor in this problem will be maintained.

There are approximately 160,000 doctors in the United States, whose activities are centered among all classes and kinds of people, where opportunities for close personal contacts are greater than to be found in any other line of endeavor.

The doctor, non-politically minded, in the main goes his way quietly, unassumingly, minding his own business. As a usual thing, he thinks little of his opportunity for capitalizing these contacts for the benefit of himself and his kind. He seems to have little realization of the tremendous power lying latent and unused which, if directed for the benefit of medicine by a few well chosen words, would enlist his patients as allies, and assure the continuance of progress in medicine for the prevention and cure of disease by this molding of Public Opinion.

An Editorial in the A. M. A. Journal, November 24, 1934, "The Conference on Economic Security," should be read with deep thought and reflection by every doctor. One thing to be noticed there is the complexion of the advisers in things medical to the powers-that-be in the government of the country. Names well known in medicine, to be sure. Names of those who have attained professionally and economically, but what a predominance of specialists, who feel only relatively the pinch now dominant in medicine! Their advice is asked and given in all things affecting the medical profession, even with the questionable accuracy of informing the country that "Ninety per cent. of the doctors are bootleggers." They serve on the investigating committees and commissions, so numerous in our present era of experimentation in those things most vital to our future.

On the side lines stands the doctor, who is the wheel-horse in medical work, listening hopefully for those words of wisdom and advice which will remedy his economic ills. Is there a more anomalous situation than to expect from the mouths of those whose names head the great clinics and endowments of this land, where our patients are flocking for cheap or free care, plans which will restore to us the practice we have lost to those clinics?

In the *Bulletin of the A. M. A.* for October, 1934, there are clear statements of conditions existing all over the country, and we find that commissions have been established in all the States to act in an advisory position to the Emergency Relief. The complexion of these locally situated committees differs very little from that of the National.

The time has come for the family doctor to tell his story himself. He knows the needs of

both the people and the profession, and is entirely competent to give advice on this question. The sum-total of all the doctors in this country, but more particularly the family doctors, could wield a tremendous power.

It is the outstanding duty of organized medicine to find out what the members of the medical societies actually want. Leaders in the State and County Societies are serving and have spoken, but so far the rank and file have remained quietly in the background.

In an editorial in the November 10, 1934, issue of the *Chicago Medical Society Bulletin*, written by Dr. Thos. P. Foley, he says in part: "The secret of success of organized politics is that the politician works at his trade 365 days in the year."

A successful political organization of one of the major parties in this country is a real organization, and is built up from the precincts.

The Chicago Medical Society—the Medical Society of Cook County—is larger than most State Societies, and our Branch Societies larger than most County Societies.

It is time for our organization to learn the sentiment of its members, and our Branch is a good place to begin this activity. It contains about 500 members, and has in its boundaries the large Northwestern University Medical School Clinic, and also about twelve hospitals.

The most logical method to obtain the sentiment of our membership is by a survey. There is no better plan to follow than to imitate the organization set-up of the major political parties.

A Survey Committee should divide the District into precincts and place in each precinct a Captain, whose duty it would be to promptly visit every physician in his precinct. At that visit he would present a general questionnaire, carefully prepared by the Survey Committee, discuss the question involved, and obtain a reply to the questions, in writing, over the member's signature. If the questionnaire is not satisfactory to the member, the precinct Captain is to obtain some statement expressing the individual's thoughts and suggestions pertinent to his individual difficulties, and with his suggestions and thoughts for a solution of those difficulties.

The answers to the Questionnaire should be assembled and crystallized by the Survey Committee, and reported to the Society for formal

adoption. From this should be prepared a concise, clear, simple, comprehensive statement, expressing the consolidated views of the doctors who have participated in the Survey. Each member should be furnished a copy of this statement and thus have at hand an analysis of the problems affecting medical practitioners. Then he should be able to speak with knowledge to his lay contacts, and have logical data for his effort to mould Public Opinion.

To a certain extent, the doctors, on this one subject at least, should be thinking along a common line, and talking in the same language.

Other groups of doctors will learn of this activity and no doubt many will institute a similar investigation.

A canvass such as this would bring to the surface what the doctors think about these problems, thus affording an opportunity to create a common ground upon which to unite to present a solid front in support of those things indispensable to the future welfare of the sick.

It is obviously the duty of the doctors, however, to take the initiative here and in all matters pertaining to the problem of the sick.

Any economic plan having for its object the care of the sick must develop through a cooperation between the public and the medical profession, and it must be based on the humanitarian viewpoint of the care of the sick under all circumstances. This is not the responsibility of the doctor alone, nor of the public alone. It must be recognized as a mutual responsibility, where each has a definite part to play.

With the moulding of Public Opinion as to what is best for the common good in the problem of the sick, and the awakening of the doctor to the hazards ahead, which alone will lead to the focusing of the activities of the medical profession toward a definite objective, there will be found a starting-point from which plans may be evolved. These plans must be the outcome of the fusion of these dual interests, where due consideration has been given to matters vital to all. Then will we find the rôle for the medical profession in the future economic life of America.

NOTE: The following Questionnaire was adopted by the Society before which this paper was presented, and the Survey is now in progress. The North Shore Branch, another large subdivision of the Chicago Medical Society, is

about to undertake a similar survey, and it will be under way there in a few weeks.

NORTH BRANCH, SURVEY COMMITTEE QUESTIONNAIRE

Please answer the following questions on a separate sheet of paper:

1. Do you believe the medical profession should cooperate in the development of a better plan than now in effect for the purpose of caring for:

(a) The indigent sick.

(b) The low income group (\$750.00 to \$1,000.00). Why?

2. Do you believe that a direct personal relationship between the individual patient and the physician is essential? Why?

3. Do you believe that organized medicine should develop a plan for a more effective guidance of public opinion? How?

4. Do you believe that the university, hospital and Government clinics and dispensaries should be decreased in numbers and restricted to the care of the indigent sick? Explain.

5. Do you believe that by inherent right the medical profession should take leadership in all public, legislative and private matters pertaining to the sick? Explain.

A. What percentage of your private patients do you refer to so-called free clinics for consultations and treatment?

Is it because of—

(1) Lack of funds on the part of patients.

(2) Clinical laboratory diagnosis.

(3) X-ray laboratory diagnosis.

(4) Treatment.

What percentage of these patients are referred back to you?

B. How many hours per week do you devote to free clinics, dispensary, teaching and similar work?

C. How many hours per week do you devote to caring for free patients in your private practice?

D. Do you believe organized medicine should own and operate a fully equipped chain of clinical laboratories (one in each branch) for examination of pathological specimens or for the reference of indigent and low-income patients for diagnosis?

1910 Lincoln Ave.

PREPAREDNESS FOR ACID OR ALKALI BURNS OF THE EYE

A. B. MIDDLETON, M. D.

PONTIAC, ILLINOIS

Recently a survey was made relative to blindness or partial blindness that might be attrib-

Read before Section on Eye, Ear, Nose and Throat at annual meeting of Illinois State Medical Society, at Springfield, May 16, 1934.

uted to the first aid treatment, that was given in eye accidents caused by acid or alkali burns.

The result of this survey appears to indicate that the best explanation is a lack of preparedness, upon the part of the doctor who gave the first aid treatment, by not having on hand, or even using neutralizing solutions in many cases which resulted in blindness or partial loss of vision. It is thought that a large percentage of this visual loss might have been prevented if neutralizing solutions had been promptly and freely used.

In view of the fact that the present day customs and activities of our people has brought about many radical changes in the practice of medicine, one of which is an increase in the number of acid or alkali burns of the eye, it becomes necessary, that every medical man, whether he is a general practitioner, surgeon, specialist or laboratory worker should always be prepared and ready to give to this class of cases, upon a moment's notice, the proper neutralizing solution in his first aid treatment; this however can only be done by having on hand properly prepared and ready for use, the necessary neutralizing solutions which, when used, will save vision for many cases that otherwise would have total or partial loss of sight.

The bottles containing such neutralizing solutions should be labeled with specific directions that can be easily understood, in order that the office assistant or any one else can use them properly, in case such a patient should arrive, while the doctor is out.

It is a peculiar fact that when a chemical eye accident happens, the patient as a rule rushes to the nearest doctor possible, regardless of any particular line of practice he might be following, consequently all medical men should be prepared to treat such emergencies, even though they have practiced medicine for years and not had a case of this kind.

With the many automobile and radio storage batteries, cream testing solutions, mechanical ice boxes, kitchen sink cleansers, concentrated lye, ammonia solutions, plasterers, children in high school laboratories, and dozens of other things, that are being used in the present day domestic life, sooner or later you will have a case when least expected, and if not properly prepared, your patient stands a good chance of losing a

certain amount of vision, that might be saved if given the proper first aid treatment.

Are you going to sit idly by after hearing this appeal, and let that time arrive, which will be an embarrassing moment to you, and possibly cause a reduction of vision of a patient, who might be yourself, or a member of your immediate family?

It is wise in time of peace, to prepare and be prepared for the unexpected.

For example: Let me recite two cases in the doctor's own family for your consideration and prove to you the value of preparedness, in handling eye accidents by acid or alkali burns.

First: Recently following the discussion of this subject before a medical society, a physician remarked, "I have been practicing general medicine over twenty years and have not had such a case, but as a precautionary measure, I am going to prepare myself tomorrow."

Just four days later, one morning the local high school superintendent, called the doctor's office, all excited, stating that an accident had happened in their chemical laboratory, and an acid solution had splashed over the Doctor's daughter's face, and into her eyes, she is on her way to the office, and will be there, in a few minutes. The office girl had just hung up the receiver, when the girl was led in, the Doctor was out on a call, but fortunately, he had kept his word, neutralizing solutions were on hand and used freely, until he returned, but even then, with prompt and free use of neutralizing solutions, she developed several corneal ulcers, which healed quickly, but left shallow faceted scars. If neutralizing solutions had not been used freely and promptly in this case, this girl would have lost much vision or possibly an eye. So much for preparedness.

Second: An automobile accident happened, near a doctor's office, the car turned over, no one was hurt, except the battery solution ran into the eyes of the driver. The Doctor being more or less nervous, loaded his patient into a car, and took him twenty miles to an oculist. During that hour, after the accident, the cornea became pale, and the burn resulted in a deep corneal ulceration, leaving a dense leucoma, thus interfering very much with the central field of vision. If this man had received the same first

aid treatment that the Doctor's daughter received possibly he, too, might have had shallow transparent corneal scars and much better vision. This Doctor had also practiced for years, and this was the first case of it kind, but he resolved to be prepared in the future, which later proved to be a fortunate thing for him, due to the fact that in about one month, while testing urine with an acid solution, the solution boiled over striking his face and went into one eye. Reaching for the bottle of soda solution, that he had prepared, he was able to give to himself a first aid treatment with the proper neutralizing agent, yet, even then he developed a corneal ulceration which healed nicely, leaving a shallow scar, otherwise, this might have been a serious case. I hope these two cases will prompt you to take notice, and realize the value of preparedness.

Sulphuric, hydrochloric, nitric and acetic are the most common acids, that lead to injury to the eyes. Chemical burns of the eye are placed in four divisions for convenience, in describing the same.

1. Those that do nothing more than cause a chemical fixation of the tissue involved.
2. A leukocytic reaction.
3. Ulceration and perforation of the cornea.
4. The cicatrization and reparation made as a result of the healing process.

Burns with acids are less dangerous than those with alkalis. The free use of water alone dilutes acids, and helps very much, while upon the other hand, in most cases, the dilution of alkalis, with water is of little value.

Soda, potash, lye and ammonia are the most common alkali burns.

Treatment: Always use large quantities of water, as quickly as possible and wash away the excess chemical. In acid burns, neutralize with bicarbonate of soda, potash, lime water or milk. If an alkali burn, neutralize with dilute acetic acid, always remembering if it is an ammonia burn to be sure to do a corneal paracentesis and drain the aqueous from the anterior chamber immediately; if you do not do this the ammonia will osmose through the cornea, and convert the aqueous into an ammonia solution, which will destroy the iris and vitreous without failure, also destroy the eye.

In lime burn cases, after douching the eye

freely with water, be sure that you pick and wipe out all the particles of lime, then use ammonia chloride solution as a neutralizer, continuing at half hour intervals for the first twenty-four hours.

Every Doctor should have the following solutions prepared and ready to use on a moment's notice.

No. 1. 6 oz. lime water for acid burns of the eye.
6 oz. 10% bicarbonate of soda for acid burns of the eye.

No. 2. 6 oz. dilute acetic acid for alkali burns of the eye; 6 oz. 2% ammonia chloride sol. for alkali burns of the eye.

No. 3. Bottle of litmus paper to determine whether it is an acid or alkali burn.

Each bottle should bear a label something like the following:

Directions: This solution is to be used at once, freely and often, in all cases where there is a chemical burn of the eye regardless of its severity after first determining whether or not it is an acid or alkali case.

Keep the patient's eyelids widely separated; allow the solution to flow directly on the eyeball, regardless of pain or restlessness; flush the eye often and freely with water during this treatment.

Write these directions on the litmus paper bottle: Place a piece of this litmus paper in the eye, over the burned area; if the blue paper turns red, you have an acid burn, then begin using acid neutralizing agents; if the pink paper turns blue, you have an alkali burn, then begin using alkali neutralizing solutions.

DISCUSSIONS

Dr. C. O. Sappington, Chicago: This is a very important dissertation on an important type of industrial injury. I have been interested from the standpoint of an industrial specialist. A few years ago Dr. Frank Underhill of Yale University, in urging first aid treatment in industrial plants, recommended copious flushing with tap water and probably that was the best thing that could be done. Dr. Middleton has commented that water is useful in acid burns but not alkali burns. Underhill's contention was that any damage done either by acid or alkali was immediate; that neutralizing agents were of practically little value; and that copious flushing with tap water would dilute any remaining amount of the damaging agent that was present. Certainly these views have permeated industry as a first aid measure. My former experience as medical director of the National Safety Council shows that this view is very widespread, and I believe still continues to be used. This is of course a definite adaptation of the first aid measure that Dr. Middleton brought to your attention, but I think it might be of interest to you.

Dr. G. H. Mundt, Chicago: I think Dr. Middleton's discussion is very timely. One thing brought out in the Journal of the American Medical Association, some five years ago, by Dr. Hans Barkan of San Francisco, is the use of 10 per cent. solution of neutral ammonium tartrate in lime burns. The reason I get on my feet

now is to say that anyone who is not acquainted with this medicament would be surprised at its efficacy even when used very late. In lime burns there is a deposit of lime in the cornea and no matter how late you use it, you will get some absorption. With the experience I have had with neutral ammonium tartrate in lime burns, I am surprised that it has not come more into the literature. Barkan has testified as to its value since his original article, and I recommend the use of this treatment in lime burns.

Dr. A. B. Middleton (closing): I have nothing further to add except in order that you might realize the importance of first aid treatment in eye injuries, you will find four exhibits at the scientific section of the American Medical Association, this year, a demonstration as to the best thing to do in first aid treatment of eye injuries. This demonstration is encouraged by the Society for the Prevention of Blindness due to the fact that these accidents are happening every day and physicians come in contact with them for the first time even after having practiced medicine for years without having been called upon to treat such a case.

THE STATISTICAL STATUS OF DIABETES

G. HOWARD GOWEN, M. D.

From the Department of Bacteriology and Preventive Medicine,
University of Illinois, College of Medicine, The Research
Laboratories of the State Department of Public Health and
The Chicago Medical School.

CHICAGO

Statistically diabetes mellitus is showing a definite and rapid increase. This has been shown by Emerson and Larimore,¹ Rabinowitch,² Hambleton and Joslin,³ Dublin,⁴ Drolet,⁵ and others. The aforementioned presentations have been based practically in entirety upon mortality statistics, which after all is the only general source of knowledge that is obtainable on this disease, and the evidence presented suggests in no mild way an impending diabetic catastrophe, if these statistical surveys are in reality truly prophetic of the future. Joslin⁶ has most aptly summed up the situation in his statement that: "If diabetes should continue to increase in the next 30 years at the same rate statistics show it has increased in the last 30 years, it would rival tuberculosis as a cause of death, and if this rate progressed for another generation, diabetes would be responsible for almost the entire mortality of the world. Such a rapid rate of increase is evidence of itself that a fallacy exists somewhere in the statistics." Questioning very much whether diabetes will ever prove to be such a portentous mortality issue, a survey was made of dif-

ferent sources of information on diabetes to see if there was not some contrary evidence which might prove more encouraging, and also to see if there is not some possible explanation of why such an apparent peril in reality does not exist.

Inasmuch as the death certificate is our source of information, and the interpretation of the death certificate is our criterion, this was the first consideration as a possible source of error. The degree of uncertainty and inaccuracy with which causes of death are certified has long been appreciated by the U. S. Census Bureau. In 1911 several thousand queries were sent to physicians in regard to the manner of filling out certain specified death certificates. Of those replying, 57% made changes in the cause of death. In 1929, queries were sent to 37,000 physicians and at this time 47.2% of those replying made changes in cause of death. Although in this eighteen year period there is a seeming improvement in accuracy of 9.8%, nevertheless the remaining 47.2% degree of inaccuracy is markedly outstanding and deserved cognizance. That this is fairly representative of the medical profession as a whole is evident since the queries were sent out indiscriminately, countrywide. The best chance of error in certification of the cause of death should be in regard to the unhospitalized case whether it be in a rural or urban community. A more accurate certification should be made in regard to the hospitalized case but this would necessarily depend to a great extent upon the type of hospital and the attending physician. Too frequently the work entailed in filling out the death certificate is relegated to the interne. The most accurate certification of death would be that based upon a postmortem examination, but as is well known the number of such cases is but a very small percentage of the total deaths. It is seen therefore that initially there is a great inaccuracy in citing the cause of death in general and this should apply to diabetes as well as any other type of disease. The result of improper certification is best exemplified in the following instance. In 1914 measles was charged with 4,461 deaths. On the basis of information on the death certificates however, 64 of these cases would have to have been charged to bronchopneumonia or "Pneumonia." Queries in these 64 cases elicited enough additional data

from the physicians so that definitely they belonged in the category of measles. Had this not been done measles would only have been charged with 4,397 deaths. In this case changes in certification of death resulted in a 1.5% increase in deaths due to measles.

The status of diabetes as a cause of death in relation to other causes is of interest. According to the index of joint causes of death, U. S. Bureau of Census 1914, diabetes takes precedence over all other causes with which it is reported jointly as a contributory cause except diphtheria, pulmonary tuberculosis and typhoid fever. This being true and assuming the following certifications of death had been made,

1. Pulmonary tuberculosis and diabetes.
2. Lobar pneumonia and diabetes.
3. Malaria and diabetes.
4. Acute appendicitis and diabetes.

in 1, death would have been charged to pulmonary tuberculosis but in 2, 3 and 4 death would have been charged to diabetes. Joslin has recently shown that tuberculosis is 13 times more common in diabetic children and 2-3 times more common in diabetic adults than in normals, but there is no evidence indicating that lobar pneumonia, malaria, and acute appendicitis are more common in diabetics than in normals. In spite of this in 1, where diabetes is of special significance, death is charged to pulmonary tuberculosis, and in 2, 3 and 4, where it is of minor if any significance, death is charged to diabetes. That this is illogical is substantiated by Mosenthal⁷ who states: "In analyzing the mortality statistics, it should be made clear that the term "diabetes death rate" more nearly represents the incidence of diabetes mellitus than the actual diabetic death rate, since diabetes is usually, though not always, given preference as the cause of death which is officially recorded when more than one condition is mentioned on the death certificate."

In further considering the status of diabetes as a cause of death the associated pathology is of significance. At intervals the U. S. Census Bureau presents statistics showing not only the primary cause of death but also the associated contributory causes. The following was the report given for the year 1917 in regard to diabetes:

Total cases in which diabetes was given as primary cause of death were 12,734.

The total contributory causes were 6,080.

Some of the principal contributory causes were:

Gangrene	1,235	Acute bronchitis.....	47
Bright's disease	951	Embolism and thrombosis	44
Organic heart disease....	812	Cirrhosis	42
Cerebral hemorrhage....	397	Pleurisy	35
Lobar pneumonia.....	273	Erysipelas	37
Arteriosclerosis	223	Septicemia	48
Furuncles	200	Appendicitis	23
Bronchopneumonia	170	Biliary calculi	21
Acute nephritis.....	103	Acute articular	
Influenza	143	rheumatism	15
Pulmonary congestion....	116	Anemia	18
Acute endocarditis	76	Intestinal obstruction....	13
Chronic bronchitis.....	63	Alcoholism	15
Abscess	54	Measles	13
Angina pectoris	53	Effect of heat.....	10
Diarrhea	50	Exophthalmic goiter....	9

The important relationship of diabetes to gangrene, furuncles, abscess, septicemia, and at times to arteriosclerosis, can not be questioned, and undoubtedly in these cases it should be given preference. In the other innumerable pathological syndromes, one has to stretch the imagination considerably to see any reason why diabetes should be given preference. Rabinowitch⁸ states as follows: "For example, to take one cause of death, gangrene. It appears reasonable that had the individual not had diabetes, he probably would not have had gangrene at the age at which it occurred. Had he not had gangrene, he probably would not have had septicemia and therefore probably not have died at the age he did die. Again, if he did not die of infected gangrene, but of bronchopneumonia following anesthesia and operation, he still died of diabetes. Had there been no operation, there would have been no anesthesia and therefore probably no pneumonia." While this type of logic might be applied to a closely allied condition such as gangrene although one is continually mindful of the frequent use of the word "probably" in the above quotation, it is hard to visualize a similar application to the variety of other diseases listed.

That everyone is not in accord with the preference given diabetes as the primary cause of death is seen in the report given by Allan⁹ on diabetes at the Mayo Clinic for 1930. There were 42 deaths in diabetics and the causes of death were given as

Diabetic coma	2	Influenza	2
Gangrene	1	Kidney disease	1
Cellulitis and septicemia...	1	Addison's disease.....	1
Hemochromatosis and		Gastric ulcer, hemorrhage	1
dysentery	1	Intestinal obstruction....	1
Carcinoma	12	Acute pulmonary edema	
Heart disease	9	(postpartum)	1
Liver and gall bladder....	4	Accident	2
Pulmonary tuberculosis....	2	Unknown cause	1

Although all these deaths were in diabetics, Allan in summation says that diabetic coma caused two deaths, diabetes was contributory in two cases of gangrene and cellulitis, and in the other cases death was due to causes other than diabetes. In 1930 there were 840 cases of diabetes at the Mayo clinic. If we consider the diabetic deaths in the light that Allan has considered them the fatality rate would be 0.002%. If we consider also the cases of gangrene and cellulitis the fatality rate would be 0.004%. If, however, we ascribe all the deaths to diabetes except the two cases of pulmonary tuberculosis which take precedence over diabetes, the fatality rate would be 0.47% which approximates 20 times the rate of 0.002% and 10 times the rate of 0.004% as given above. The method of assignation and interpretation results in wide variations and diversion. This has been recently exemplified by Miller¹⁰ who has tabulated the diabetic mortality figures of New York City as given by the New York bureau of records which does not adhere mechanically to the rules of the Manual of Joint Causes of Death and the U. S. Census Bureau which may be considered as following the Manual of Joint Causes, per 100,000 from 1901 to 1931. In eleven instances there was a difference of between 1 and 10%, in fourteen instances differences of between 10 and 20%, and in six instances differences of between 20 and 30%.

The change of the position of diabetes in the listing of the more important causes of death is interesting. Hamblen and Joslin¹¹ cite the following statistics from the state of Massachusetts from 1902 to 1927:

1902—Diabetes was the 21st cause of death.

1910—Diabetes was the 18th cause of death.

1920—Diabetes was the 13th cause of death.

1925—Diabetes was the 11th cause of death.

1927—Diabetes was the 11th cause of death.

They state that diabetes is given as a cause of death twice as frequently as it was 25 years ago. This change in the position of diabetes as a cause of death is assumed to be due to more accurate death reports in which some of the vague terms were eliminated which formerly preceded diabetes as a cause of death. While this may be true, why could it not also be true that due to greater cognizance of diabetes, many vague terms may have been reported jointly with diabetes in which case of course diabetes would be given

preference. There can be no doubt that since the inception of the Banting era, the interest in diabetes has increased many hundredfold not only among the physicians but also among the laity. That greater accuracy and more frequent diagnosis has resulted, can not be questioned. The world is becoming diabetic minded. The term diabetes is vivid in the mind of every physician. That this is true should be lauded, but the question arises as to what is actually the status of diabetes in the mind of the physician when he certifies a diabetic death. Does he know that when he gives two or more joint causes of death, only one can be selected as the primary cause? Does he know the preference given to diabetes when reported jointly with other causes of death? When he reports diabetes jointly with conditions such as Bright's disease, lobar pneumonia, acute nephritis, cerebral hemorrhage and others, does he consider these conditions or diabetes as the primary cause of death, and does he know that in spite of his actual opinion, the mode of statistical selection will charge the death to diabetes? If the average physician in the United States is familiar with these facts, nothing more need be said, but it is extremely doubtful if a small percentage, outside of those associated with public health or statistical work, have this cognizance. In other words, does the present method of statistical selection of diabetes as a cause of death actually express the opinion of the physician at the time that he certified the death. It would be safe to say, undoubtedly not, and undoubtedly queries along this line would elicit this fact.

The aging of diabetics has been well proven. Hamblen and Joslin³ cite the following information:

1900—65% of diabetic deaths occurred in age group 50 plus.

1910—67% of diabetic deaths occurred in age group 50 plus.

1920—72% of diabetic deaths occurred in age group 50 plus.

In 1929 there were 21,829 deaths from diabetes in the registration area of the United States. In the age group 45 and over, there were 18,934 deaths or 86.6% of the total. Bolduan¹² gives the average diabetic deaths in New York City for the years 1929-30-31 by age groups as follows:

	Male	Female	Both
0-25	14	16	30
26-44	45	71	116
45-64	310	620	930
65 and over.....	244	490	734
Total	613	1,197	1,810

In the age group 45 years and over there were an average of 1,664 deaths. This would be 91.9% of the total which is in accord with the percentage cited above from the registration area. These facts being true, nevertheless the most extreme reticence is shown in even suggesting that a diabetic over the age of 45 could possibly die from anything but diabetes. John¹³ in an observation on 2,000 cases gives the fatality rate as 6.55% in seven years. He further notes that if the deaths in the seventh, eighth and ninth decades were excluded because of natural incidence of death in those periods, the fatality rate would drop to 4.44%. This is rather significant, and a rather conservative statement inasmuch as the fifth and sixth decades might have been included where also, although one might not say natural incidence, there are factors equally as common to non-diabetics as to diabetics, which cause death. When death occurs in typical diabetic coma, there could be no doubt as to the cause of death and interpretation of the primary cause in such a case would be simplicity itself. Such cases are now relatively infrequent. The present status of coma can best be exemplified by excerpts from various observers. Rabinowitch⁸ gives the following data:

Diabetics at Montreal General Hospital:

- 1921-22—50% of deaths due to coma.
- 1923 (Insulin introduced)—No deaths from coma.
- 1923-27—Deaths largely from other causes.

Bolduan¹² cites the following statistics on Joslin's series of diabetic deaths from 1894 to 1926:

	1894-1914	1915-1922	1923-1926
Total	342	805	609
Coma	208-60.8%	338-42%	122-20%
Cardio-reno-vascular ..	45-13.1%	166-20.6	207-34
Infection	29- 8.5	145-18.0	162-26.8
Tuberculosis	16- 4.7	37- 4.6	32- 5.3
Cancer	9- 2.6	27- 3.4	30- 4.9
Miscellaneous	35-10.3	92-11.4	55- 9.0

He also gives the following information for New York City in 1930:

Diabetic deaths by contributory cause:

Coma (no contributory cause).....	412	23%
Cardio-arterior-renal	932	52
Gangrene	119	6.7
Sepsis	35	3.0
Respiratory	138	7.7
All others	128	7.6
Total	1,784	

Matz¹⁴ in observations on 300 diabetic war veterans' report that the average age of occurrence of coma was 31 years. Lyon and Lyon¹⁵ report that the average age of death from coma was 37.4 years and the average age at death in non-coma was 62.1 years. John¹³ gives the death rate from coma in his series as 0.5%. As stated before, death from diabetic coma can be questioned, but all reported diabetic deaths certainly were not cases of coma, and since at the present time coma is such an infrequent cause of death, is the charging of so many deaths to diabetes a logical procedure and is it on an accurate basis? Rabinowitch⁸ gives the following data:

Death rate in surgery:

- 1921-22—38.1%
- 1925-6—(After introduction of insulin), 5.2%
- General death rate:
- 1921—11.5%
- 1927—(After introduction of insulin), 1.1%

If the death rate is decreasing in this instance, why should general statistical compilations show an increase? The answer can only be, inaccurate information and improper interpretation.

As to the two to one ratio of diabetic females to males, one does not have to be beset with terrors. It has been observed by Wendt¹⁶ and most of the previously mentioned observers, that this ratio is only true after 45 years of age. Before that time the ratio is practically equal. Anyone who has had experience in the general practice of medicine knows that the two main sources of patients are children and women, and that beginning at approximately the age of forty, the number of office visits by females vastly increases. In conversing with several general practitioners, the information has been elicited that beginning around forty years of age and extending to between fifty and fifty-five years of age, the ratio of female to male visits to the physician is conservatively five to one. Therefore, other things being equal, the opportunity for diagnosing diabetes is presented five times as often in the female as in the male. On the other hand, it is also known that certain changes begin to take place in the female around forty years of age which predispose to adiposity which at the present time is considered one of the most important factors in the causation of diabetes.

Joslin, speaking before the Chicago Medical Society on February 28, 1934, stated that with diabetes increasing and tuberculosis decreasing,

at the end of approximately ten years diabetes should be of equal importance with tuberculosis. In terms of morbidity this will probably be true, but it will not be true in terms of mortality if the erroneous status of diabetes as a cause of death is in the meanwhile eliminated. It is generally accepted that many more diabetics exist than we are cognizant of, that many deaths occur in which diabetes is present but undiagnosed, and that deaths do occur in which the cause is charged to one of the conditions given preference over diabetes, particularly pulmonary tuberculosis. With the increased knowledge in the diagnosis of diabetes, the morbidity incidence of this disease should continue to increase until the peak is reached where the majority of the cases of diabetes are diagnosed. When this will occur is problematical. Once this peak is reached, there should be a decrease if the proper preventive measures have been instituted. The consideration of heredity as a factor in instituting prevention is important. Joslin has shown that:

1. If a diabetic marries a diabetic, all the children will be diabetics.
2. If a diabetic marries a non-diabetic of a diabetic family, one-half of the children will be diabetic.
3. If a non-diabetic of a diabetic family marries a non-diabetic of a diabetic family, one-fourth of the children will be diabetic.
4. If a diabetic marries a non-diabetic of a non-diabetic family, none of the children will have diabetes.

In closing, the following statistics are given relevant to diabetes and closely allied conditions, and other chronic conditions causing death, for the period 1914 to 1921 before the introduction of insulin, and the period 1922 to 1929 after the introduction of insulin:

Registration are of the United States 1914 to 1921.

Organic heart disease.....	Increased	31,379	33.5%
Arterial disease	Increased	2,769	18.4%
Chronic nephritis	Increased	8,322	13.5%
Diabetes	Increased	4,267	40.0%
Furunculosis	Increased	291	78.4%
Gangrene	Decreased	83	5.8%
Population	Increased	22,678,307	34.3%

Registration area of the United States 1922-1929.

Organic heart disease.....	Increased	90,827	72.6%
Arterial disease	Increased	5,594	31.3%
Chronic nephritis	Increased	30,740	43.9%
Diabetes	Increased	6,896	46.1%
Furunculosis	Decreased	11	1.6%
Gangrene	Decreased	143	10.5%
Population	Increased	27,649,913	31.1%

From these figures it is seen that there has been almost twice the decrease in gangrene from 1922-29 as compared to 1914-21. Furunculosis, which had increased 78.4% from 1914-21, decreased 1.6% from 1922-29. With two of the common complications of diabetes decreasing, it is hard to correlate this with the statistically quoted increase in general diabetic mortality rate.

SUMMARY

1. There is a high degree of inaccuracy in the certification of death in this country as evidenced by the report of the U. S. Census Bureau in 1911 and 1929. Since this is generally true, it must also be true in regard to diabetes.

2. In the selection of the primary cause of death for statistical tabulation, diabetes is given preference over all other causes with which it is reported jointly excepting diphtheria, pulmonary tuberculosis and typhoid fever.

3. The average physician, in certifying the cause of death, is probably not familiar with the preference given diabetes, and so the mode of selection in statistical surveys is certainly not an accurate interpretation of the opinion of the physician when he actually certified the cause of death.

4. The diabetic's expectancy of life is much greater than it was in the past and so he is subject to those conditions which also cause death in the non-diabetic.

5. Evidence shows that the diabetic has varying types of associated pathology, but evidently little cognizance is taken of this fact when death is certified or when the cause of death is selected.

6. The fact that diabetes is reported twice as often in the female over forty as in the male can be explained on the basis that the female over forty seeks medical advice about five times as often as the male.

7. The vast increase in diabetes is based on improved modes of diagnosis, and this increase will be evident until the majority of the cases are diagnosed and preventive measures instituted.

8. Statistical studies of diabetes based on death rates should in general be considered in the light of morbidity incidence and not in terms of mortality.

9. Since diabetes has become such an im-

portant public health problem, changes should be made in the statistical compilation of data, in order that a more accurate view might be obtained of the actual morbidity incidence.

10. Diabetes offers a problem in preventive medicine far different than any previously experienced. The complication entailed in its solution should be pleasantly offset by the phases of interest and the satisfaction derived in its accomplishment.

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TRANSURETHRAL PROSTATIC RESECTION

GERSHOM J. THOMPSON, M. D.,

Section on Urology, The Mayo Clinic,

ROCHESTER, MINN.

The burden of relieving a patient suffering from obstruction to urination usually falls first on the general practitioner. Unfortunately, the obstruction more often than not is complete, and in most instances the physician is implored to act quickly. It is needless for me to state that such situations demand above all other considerations the avoidance of action so hasty that aseptic precaution is thrown to the winds. Certainly, the prevalent misconception that infection of the bladder is the inevitable consequence of the passage of an instrument into the urethra is to be decried. An opiate, administered hypodermically, will many times relax a patient

sufficiently to permit passage of a small, soft rubber catheter, which has been sterilized while the hypodermic injection is being absorbed, and thus obviate the use of a steel catheter passed on sight at the risk of contamination and urethral injury. A distinct aid in the passage of a soft catheter that meets unusual resistance is the instillation of several drams of lubricant, squeezed from the tube directly into the anterior portion of the urethra and gently milked posteriorly. On several occasions I have been able to avoid defeat by including this step in the technic. The steel catheter is an instrument of torture except in unusually skilled hands, and before resorting to it, I gently try several Coude or bi-Coude catheters, and sometimes, a filiform and follower. If extreme difficulty is encountered, one should resort to tapping the bladder suprapubically with a long needle rather than to persist in attempts at catheterization. Frequently, when the downward pressure of a distended bladder has been removed by such measures, one can pass a soft catheter through an apparently badly obstructed urethra with surprising ease. Since comparative remission of symptoms is the rule following such episodes of complete retention, the physician is often not consulted again until the time of a similar occurrence. Particularly was this true during the first three decades of this century, when the only surgical means of relief for the majority of patients was prostatectomy. Patients avoided surgery and suffered many repeated episodes of complete or incomplete urinary retention rather than face the mortality and morbidity that accompanied the alternative.

It is not an overstatement of fact to say that transurethral prostatic resection has changed the whole picture in the consideration of surgical treatment for these patients. Any surgical attack on the obstructing prostate gland is a procedure of election; certainly, emergency prostatectomy is a misnomer. The transurethral operation in skilled hands can be applied in practically every case in which prostatectomy formerly was required, at a risk only a small fraction of that encountered in the latter procedure. Another group of patients who gladly accept the small risk of transurethral resection are those whose urinary obstruction is relatively slight. Thus, these patients avoid secondary,

vesical and renal injury that results eventually from prolonged prostatic obstruction. Still another group of patients to whom the transurethral operation has proved a blessing are those who for years have worn suprapubic drainage tubes because cardiac, renal, or other degenerative disease had precluded relief by prostatectomy. In the past few years I have restored vesical function to many of these patients by relatively simple transurethral operations. Our experience at The Mayo Clinic during the past few years indicates that fully 98 per cent of patients with urinary obstruction can be relieved by transurethral resection.

As a preliminary to operation, one should include careful routine physical examination in order to recognize complicating disease. In a series of 721 cases observed during 1932 and 1933, associated conditions could be grouped into three classes: cardiovascular disease, carcinoma, and miscellaneous diseases. The number of cases in which the various cardiovascular diseases occurred were as follows: angina pectoris in twelve, complete bundle-branch block in three, incomplete bundle-branch block in ten, coronary sclerosis in twenty-one, aortic sclerosis in forty-seven, myocarditis with decompensation in twelve, valvular stenosis in four, arteriosclerosis of grades 2, 3 or 4 in 120, residual hemiplegia in two, and hypertension with a blood pressure of more than 150 systolic and 90 diastolic in 216.

The situation of the carcinoma, and the number of cases in which the carcinoma was found in each situation, were as follows: rectosigmoid or colon in six cases, stomach in four, bladder in four, lip and face in three, and penis, thyroid gland, and larynx, one case each.

Miscellaneous diseases, and the number of cases of each, were as follows: diabetes mellitus in thirty cases, syphilis in eighteen, duodenal ulcer in thirteen, disease of the liver and gallbladder in eleven, goiter in seven, Parkinson's syndrome in four, pituitary tumor in one, gout in five, and severe pulmonary disease in sixteen.

Study of renal function by various measures is desirable. Tests, such as of nitrogen retention in the blood and estimation of the excretion of phenolsulphonphthalein, usually provide adequate information. In an occasional case an

intravenous urogram can be used as a test of differential renal function.

Since transurethral resection is a procedure that causes little reaction, we have felt that it could be applied in many cases without resorting to preliminary drainage by inlying urethral catheters. Thus, in 309 (55 per cent) of the cases in which patients were subjected to operation during 1932 and 1933, no preliminary drainage of the bladder by inlying catheter was deemed necessary. These patients were operated on immediately after completion of the general physical examination. The saving in hospital expense for this group amounted to a substantial sum, and in addition they were spared at least a week of discomfort. Of the remaining 45 per cent. of patients, 33 per cent. were prepared by intermittent or inlying catheters and 12 per cent. by preliminary suprapubic cystostomy. The latter group included those with severe renal injury who required many weeks of vesical drainage before renal function was restored sufficiently to permit safe operation on the prostate gland. In addition, there were a few cases in which vesical calculi, too large for litholapaxy, vesical tumors, or vesical diverticula required suprapubic operation, at which time drainage was established incidentally.

Spinal anesthesia is by all odds the type of choice. It produces relaxation of extreme aid to passage of the resectoscope. The amount of procaine used should never be more than 100 mg., and in the majority of cases 70 mg. is sufficient.

I prefer to use the Braasch-Bumpus resectoscope because, since it is a direct vision instrument, one is not handicapped by moderate bleeding, hence the operation can proceed rapidly, and the period is shortened and less risk to the patient is involved. With this instrument, extreme electrocoagulation of a large surface of the prostatic urethra is avoided, for cutting is accomplished with a cold knife; following this, individual bleeding vessels are controlled with a single-tip electrode.

The amount of tissue that need be removed in any given case may vary from a gram or two to more than a hundred grams. In one case it was necessary to remove 116 gm., a mass the size of a baseball. The statement sometimes made,

therefore, that transurethral resection is an obviously incomplete operation is unwarranted; when it has been necessary, I have performed transurethral removal down to the prostatic capsule in just as thorough fashion as is possible by either suprapubic or perineal enucleation. Transurethral resection is not a "channeling" operation. It is not sufficient to cut a groove through a large, median lobe. Such incomplete operations produce functional results that are a discredit to the procedure.

Postoperative drainage of the bladder is provided by a number 22 French catheter, which should be lavaged with sterile solution often enough to prevent formation of clots. Drainage for forty-eight hours is the rule, and when the inlying catheter is removed, one must guard against overdistention of the bladder in cases in which postoperative edema or persistently obstructing prostatic tissue prevents free passage of urine. A second operation at an early date is preferable to attempts to force the patient to get along with a partially obstructed vesical outlet. As a rule, there is less reaction from the secondary operation than from the primary procedure.

In the average case, the period of hospitalization is approximately one week. Of the group of 721 patients cared for during 1932 and 1933, 49 per cent. were confined seven days or less, an additional 32 per cent. from eight to fourteen days, and only 8 per cent. for more than three weeks. Healing of the prostatic urethra is not complete in most cases until approximately three weeks after operation, and it is safest to keep patients under close observation until that period has elapsed. During the greater part of it, however, they can be ambulatory.

The mortality rate during 1932 and 1933 was approximately 0.7 per cent., five patients, sixty-six to eighty-five years of age, dying fourteen to thirty-two days after operation out of a total of 721. The mortality rate during 1934 to date has been even lower, one consecutive series of 451 patients being operated on without a death.

Recurrence of obstruction, either because of regrowth or because of incomplete removal of tissue, has been very uncommon. It is, of course, too early to give any exact figures, but from my experience to date I am firmly convinced that the percentage of recurrences over any period of

time will be only a fraction of the percentage of the immediate mortality that follows prostatectomy. The transurethral operation, therefore, seems to be the method of choice.

CALCULOUS DISEASE OF THE URINARY TRACT

LEO A. MASLOW, B. S., M. D.

CHICAGO

From the voluminous literature on the etiology of urolithiasis one may sift out the following facts:

1. Stasis and infection of the urinary tract play the most important roles as predisposing factors in stone production.

2. The urinary salts are kept in a dissolved state in the highly supersaturated urine by the action of substances known as "colloids." In stagnant urine these colloids undergo certain changes whereby they are no longer able to keep the urinary salts in solution, a colloid-crystalloid imbalance is thereby created, and crystals are precipitated. These crystals, which are potential nuclei for stones, will pass out in the case of a normal urinary tract. This is evidenced by the fact that many individuals pass numerous crystals without showing any tendency to stone formation. But if there is any abnormality of the urinary tract these crystals may be retained and by accumulation form stones.

3. The chemical character of stones will vary with the pH of the urine. Uric acid, urate and oxalate stones form in a relatively acid urine, whereas amorphous carbonates and phosphates will form in alkaline urine.

4. Vitamin A deficiency as a cause of calculus formation has been presented. This is based on experimental production of phosphatic calculi in rats fed on a diet lacking vitamin A. However, the results require further corroboration. It is not definitely settled whether the lack of vitamin A is the cause of stone formation, or whether it is the alkalinity which this diet invariably produces. Furthermore, the rat is hardly a suitable animal for these experiments, since it is susceptible to stone formation when in captivity.

Composition: A calculus is a concretion formed of urinary crystals bound together by a colloid substance. Calculi may be composed of

crystals normally found in the urine, or they may be a result of bacterial fermentation, as in triple phosphates. They may also result from disordered metabolism, as in cystin calculi. Stones are seldom pure. They usually consist of a mixture of various urinary salts. The rarer types of stones, such as cystin or xanthin, are more likely to be pure.

Renal Pathology: The majority of stones are formed in the pelvis or calyces of the kidney. Retention of the stone after it is formed may be due to:

- a. Narrowing of the ureteropelvic junction, congenital or acquired.
- b. External influences as nephroptosis or aberrant vessels.

The damage to the kidney tissue depends upon the presence or absence of infection and whether the stone causes obstruction or not. If a calculus is impacted at the pelvic outlet or at the neck of one of the calyces causing obstruction, the result will be either a uniform hydronephrosis or a localized hydronephrosis of one calyx. As long as the urine remains aseptic the damage to the kidney parenchyma consists of pressure atrophy only. When infection develops, however, there is a widespread pyelonephritis and the hydronephrosis soon becomes transformed into a pyonephrosis. There is now the damage incident to actual destruction of kidney parenchyma plus that due to back pressure. The kidney parenchyma either disappears as a result of pressure atrophy, or is replaced by a series of pus containing cavities.

Once infection supervenes it persists until the stone is removed. Pyelitis due to stone will subside and disappear when the calculus is removed. Pyonephrosis, however, is a permanent condition and will require nephrectomy. In general, stone in the kidney is a destructive process, the degree of destruction being influenced by infection.

Perirenal Pathology: This may manifest itself in two forms:

- a. Fibrous perinephritis, in which the fatty tissue surrounding the kidney is replaced by a thick layer of organized inflammatory tissue at times becoming very adherent to the kidney substance. This process is known as perirenal sclerosis.
- b. Suppurative perinephritis, in which there

is an accumulation of pus around the kidney. This is due to the extension of infection from the kidney and is known as perinephric abscess.

Ureteral Pathology: Stone in the ureter may or may not obstruct the flow of urine. A round, smooth stone is more apt to cause obstruction than an irregular or spiculated stone. In like manner, a relatively small stone may cause greater obstruction than a larger one. Stones in the ureter usually become arrested at one of the normally constricted points of the ureter, i.e.:

- Opposite the iliac artery,
- At the midpelvic constriction,
- In the intramural portion of the ureter.

The pressure caused by the stone traumatizes the wall of the ureter which, in the presence of infection, may ulcerate. This leads to scarring and stricture formation. Thus, a ureter may remain pathologic even after a stone is removed and will require postoperative treatment.

Vesical Pathology: Stones in the bladder may originate in situ or they may be carried there from the kidney. A foreign body in the bladder, such as a piece of catheter, catgut, etc., may furnish a nucleus around which a stone will develop. A stone of renal origin arrested in the bladder is evidence of infravesical obstruction. A bladder neck with a normal vesical orifice will usually admit the passage of a calculus which has passed through the ureter. After reaching the bladder, stones grow by accumulation of urinary crystals. Infection usually supervenes and, in the presence of urea splitting organisms, there is deposition of triple phosphates. Thus a stone may grow to enormous size, occupying the entire bladder and block the ureteral and vesical orifices.

Symptoms of Renal and Ureteral Calculi: Pain is the principal symptom. It may be constant, localized over the ilio-costal space or upper abdominal quadrant, or it may be colicky in character. In renal calculi, the pain radiates most commonly to the corresponding ilio-costal space or upper abdominal quadrant. In ureteral calculi the colic is of a more typically radiating character, extending down the groin to the genitalia or thigh. Reflex symptoms, frequent accompaniments of colic, are: vomiting, profuse perspiration, shock, and ileus or meteorism.

Hematuria is the second cardinal symptom

and is the result of trauma produced by the stone. Hematuria may be the outstanding and, at times, the only symptom of urinary calculi. The degree of hematuria varies. It may be gross or microscopic. Oxalate stones are the most prominent in producing hematuria.

The passing of sand, gravel, or small stones is more typical, but a less frequent finding.

Pyuria is almost always associated with stones, and it may be the outstanding feature. There may be only a few pus cells seen under the microscope, or the pus may be so abundant as to make the urine foul.

Complications: *Acute renal infection* due to a sudden occlusion of the ureter or ureteropelvic junction by a calculus. There is sudden severe pain over the blocked kidney with tenderness, muscular rigidity, palpable enlargement of the kidney, high temperature and other symptoms indicating systemic infection.

Calculous Anuria manifesting itself by a sudden stoppage of urine in the course of calculous disease of the urinary tract. The following are the most frequent causes:

a. A stone impacted at the ureteropelvic junction or ureter causing complete obstruction, with reflex inhibition of urinary output on the opposite side.

b. Both pelves or ureters may be blocked by stones.

c. There may be a blocking of a solitary kidney, the latter being congenital or the result of nephrectomy on the opposite side.

Calculous anuria may present two distinct clinical pictures. There may be absence of symptoms, anuria being the only complaint, until the "period of tolerance" is suddenly terminated and convulsions, stupor and coma appear rapidly, followed by death. In the second group symptoms of intoxication appear early with nausea, vomiting, muscular twitchings and hiccup. If the obstruction is not relieved the patient makes his exitus in a manner similar to that of the first group.

Silent Cases. These present no symptoms, and are found accidentally during a radiographic examination for some other condition. This group is becoming more common with the more frequent use of x-ray.

Bladder Calculi may present the symptoms of frequency, dysuria, hematuria, sudden stoppage of

urine, pain radiating to the glans penis, urgency, tenesmus, etc.

Diagnosis: Deaver states that the possibility of renal or ureteral stone should be considered in every case of obscure abdominal pain. The diagnosis of renal and ureteral calculi is based upon:

1. The clinical history.

2. Cystoscopy and radiography, including the use of opaque ureteral catheters and pyelography, either retrograde or intravenous.

Clinical History: With the exception of the passing of gravel there is no symptom that is pathognomonic of urinary calculi. Any of the symptoms as pain, hematuria, etc., are of great value as pointing to some pathologic condition in the urinary tract. One must remember, however, that any or all of the symptoms seen in calculous disease are just as likely to be present in other lesions of the urinary tract. In other words, it is necessary to differentiate each symptom from a similar one in other conditions within, or adjacent to, the kidney, ureter and bladder.

Other renal and ureteral conditions in which pain may be a prominent or the principal symptom are: tuberculous and non-tuberculous infections of the kidney, nephritis dolorosa, neoplasms, hydronephrosis, strictures of the ureter, ureteral obstruction caused by anomalous vessels, Dittl's crisis, cystic dilatation of the lower end of the ureter, etc.

The extra-urinary conditions giving pain, to be differentiated, include: appendicitis, salpingitis, biliary calculi, tabes, spondylitis, aneurysm of the renal vessels, and intestinal obstruction.

Conditions to be differentiated because of hematuria include neoplasms, tuberculous and non-tuberculous infections of the kidney, hydronephrosis, and chronic bleeding nephritis.

Cystoscopy and Radiography: These two procedures supplemented by the use of opaque ureteral catheters and uretero-pyelography are the most valuable methods for the diagnosis of calculi at the present time. With the cystoscope one may see bladder stones which are not visualized with the x-ray. One may see a stone projecting from the ureteral orifice, the presence of a diverticulum, or other bladder pathology of importance either in giving a clue as to etiology or as to the manner of approach in treatment. By means of meatoscopy and ureteral catheter-

ization we may estimate the amount of infection and determine the function of each kidney.

Radiography enables us to determine the size, shape, location and probable composition of a calculus, whether it is fixed or migrating. With the aid of uretero-pyelography, either retrograde or intravenous, we may determine the degree of kidney damage and whether the affected kidney is normally developed and located, or is the seat of some anomaly—information almost invaluable when surgery is contemplated.

According to the shadows on the x-ray film, urinary calculi may be divided into three groups:

a. Those which are impermeable and give good shadows. These are calcium carbonate, oxalate, and phosphate.

b. Those which are partly permeable and give faint shadows. These include ammonium, magnesium, and sodium phosphates, and urates mixed with calcium.

c. Those which are very permeable and give no shadows. This group includes uric acid, urates, cystin, and xanthin.

Approximately eighty-five per cent. of all urinary calculi cast shadows and can be seen on the x-ray plate.

Occasionally, it may be questionable whether a shadow is located within or outside of the urinary tract. This is usually determined by inserting opaque ureteral catheters, and exposing two or more radiographic films at different angles. The principal extra-urinary shadows that may cause confusion are: Biliary calculi, calcified retroperitoneal lymph nodes, phleboliths, areas of calcification in the renal vessels, pancreatic calculi, semi-organized blood clots with calcareous deposits, appendiceal concretions, teeth in a dermoid cyst, and areas of calcification in the ovary, or fibroid uterus.

The wax-tipped ureteral catheter is, at times, very helpful in the urologic examination. It is used for the purpose of detecting stones in the urinary tract which do not cast shadows. In brief, it is a catheter which is waxed at its tip, and scratches from these stones are impressed upon the wax.

Treatment: Prophylactic treatment aims to prevent the precipitation of stone forming crystals in the urine, and the recurrence of stones after their surgical removal. Vital as these are, it must be admitted that, at the present time,

we are practically helpless in accomplishing either of the two objectives. We can not prevent the elimination of stone forming salts in the urine with any form of diet. These salts must necessarily be present in the urine and in sufficient quantities to form calculi if conditions are favorable. Therefore, it is very questionable whether diet has any influence on stone production. Suggestions that may profitably be carried out for prophylaxis are:

To reduce, but not eliminate, the intake of substances giving rise to stone forming salts in the urine. Generally speaking, these foods are milk, cheese, eggs and almost all vegetables.

To render the urine more dilute by ingestion of large quantities of water.

To furnish vitamin A, either in natural foods or artificially in concentrated form.

To keep the urine acid in order to prevent phosphatic deposits. If the alkalinity is caused by infection, medicaments will not acidify the urine. The infection will have to be eliminated by treatment as indicated in the particular case.

To remove all foci of infection.

To correct any tendency to abnormal fermentation in the bowel.

Cystin stones are most amenable to treatment. Since they are due to faulty protein metabolism, the patient should be put on a strictly vegetable diet. The urine should be kept strongly alkaline, since cystin is soluble in alkaline solutions.

The correction of anatomic or pathologic conditions which may lead to stasis or obstruction is of prime importance, and includes: nephrop-tosis, anomalous vessels, stricture of the ureter, stenosis of the ureterovesical orifice, persistent upper urinary tract infection, etc.

Medical Treatment is practically limited to the relief of symptoms, the most prominent of which is colic. Colic may be treated with morphine. However, large and repeated doses may be required to give relief. We at times may obtain immediate and striking relief by passing a ureteral catheter past the stone which causes the obstruction.

Instrumental Treatment: Ninety per cent. of all kidney and ureteral calculi will pass by the natural route, either spontaneously or with the help of cystoscopic manipulations. If, on cystoscopic examination, it is found that a calculus is projecting from the lower end of the ureter,

an attempt should be made to dislodge it with a ureteral catheter, bougie, or forceps. Failing in this, the ureteral orifice may be enlarged by fulguration or by slitting it with cystoscopic scissors or knife. If the calculus is located in the ureter above its vesical orifice, instruments (catheters, bougies, dilators) may be passed in increasingly larger sizes. Glycerin or oil is usually injected through the catheter to facilitate the passage of the stone. In certain cases it may be advisable to leave the bougie in place twelve hours or more. Stones may be painfully slow in their passage, but if a stone shows progress down the ureter, repeated ureteral instrumentation is indicated rather than operative interference.

The non-operative methods make a particular appeal in cases of bilateral calculi, multiple calculi, recurrent calculi, and in patients who are not good operative risks.

The dangers of instrumental manipulations are infection and injury to the ureter or kidney. Stasis above the stone favors infection. It is essential, therefore, that rigid asepsis be observed. It is also essential to use great caution not to injure the ureter; one should not use instruments which are too stiff or which have sharp angular projections.

Vesical Calculi are often voided with the urine. It is remarkable how large a calculus may pass through the urethra without difficulty. Where bladder neck obstruction is present, there is much less chance for a calculus to pass. Sometimes, after having left the bladder, calculi may be arrested in the prostatic or pendulous urethra especially behind a congenitally narrowed meatus.

If there are no contraindications, crushing with the cystoscopic lithotrite is the method of choice in the treatment of vesical calculi. Some of the chief contraindications for litholapaxy are: Prostate or bladder tumor, stone encysted in a diverticulum, sepsis of the bladder with residual urine, trabeculations or cellulites, and very large stones. Persistence of obstruction, vesical pouches, and incomplete removal of fragments are frequent causes of recurrence of vesical calculi. Care should be taken, therefore, to remove thoroughly every fragment and to correct any obstruction by appropriate treatment.

Operative Treatment: The indications for surgical treatment are:

Calculous anuria not relieved by non-operative means.

Acute pyelonephritis complicating unilateral or bilateral calculi, when the use of the indwelling ureteral catheter has not afforded the necessary drainage. The above two conditions are emergency cases.

Stones showing rapid enlargement, and those already too large to pass. Stones larger than one cm. in diameter usually will not pass spontaneously.

Impacted stones.

Stones, regardless of size, doing serious damage to the kidney.

Sepsis.

It must be remembered that no stone in the urinary tract is harmless, and that early removal of renal and ureteral calculi is the most conservative treatment, from the point of view of saving renal tissue.

In bilateral nephrolithiasis, in stone in a single or horseshoe kidney, and in silent stones without infection or diminished renal function, the tendency is toward conservatism unless an acute emergency develops.

The type of operation to be performed will depend upon many factors. These are: location, size, and number of stones, anatomic and pathologic characteristics of the kidney, the condition of the opposite kidney, the condition of the patient, and the previous history of stones.

Post-operative treatment aims to prevent recurrence of stones. This part of the treatment is very often slighted, but is of utmost importance. In brief, it consists of remedying the two most significant predisposing factors in stone formation, namely, infection and stasis. After a ureterotomy, the ureter should be dilated with bougies, to prevent stricture formation. Infection should be combated by pelvic lavage, urinary antiseptics, etc. Every possible etiologic factor should be carefully weighed and treatment applied as outlined under prophylaxis.

Summary: 1. The etiology of urolithiasis is still obscure. Stasis and infection of the urinary tract are the two outstanding factors in the causation of stone.

2. The majority of stones are composed of a mixture of the various urinary salts. Approxi-

mately eighty-five per cent. of all stones can be visualized with the x-ray.

3. Stones in the urinary tract will cause pathologic changes in the tissues eventually. The degree of damage will depend upon the amount of obstruction and infection.

4. The diagnosis of stone can be made with certainty in practically all cases, if the condition is kept in mind. Cystoscopy and urography are our chief aids.

5. In the treatment, prophylaxis should be stressed, remembering that urolithiasis is essentially a symptom of some underlying pathologic process. Instrumental treatment will assist in the passage of most stones so that surgery will become limited practically to emergencies. To prevent recurrences, postoperative treatment should not be neglected.

9 S. Kedzie Ave.

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POST-SPINAL-ANESTHETIC HEADACHE

Review of the Literature and Suggestions for Treatment

SAMUEL PELUSE, B.S., M.D.

Department of Surgery, Research and Educational Hospital,
University of Illinois

CHICAGO

Intractable post-spinal-anesthetic headache, although not a frequent complication of the present day accepted spinal anesthetic technique, does occur at some time or other in a given series of cases. In reporting this complication, Babcock,¹ Jones,² Stokes,³ and others, have commented on the very mild or even the absence of this distressing symptom in their series of cases. My results were similarly fortunate until the administration of my 1136th spinal anesthetic. This patient developed a severe, persistent head-

ache which lasted for thirteen days and was not amenable to the usual management of this type of condition. In a perusal of the literature I found many salient facts pertaining to the subject of post-spinal-puncture headache, and they are here compiled to make available at a glance the various thoughts on this interesting topic.

The Immediate Cause of Post-Spinal-Puncture Headache. The incidence of headache following ordinary diagnostic spinal puncture may be expected in from 15-25% of one's series according to Frazier,⁴ while Parker⁵ and Heldt⁶ record 20%. Subsequent to spinal anesthetic, headache, as stated by Campbell,⁷ may be expected in less than 3%. Despite the fact that diagnostic spinal puncture and spinal anaesthesia are quite dissimilar processes, the mechanism involved in the production of headache is the same in both instances, and clinically as well as experimentally has been proved to be due to the *seepage of spinal fluid through the spinal puncture wound in the dura.*

Nelson⁸ was able to reduce the incidence of postpuncture headache from 17.4% in a control series to 4.9% in his experimental group, by the ingenious method of inserting pieces of catgut of varying lengths into the hole left by the puncture needle in the posterior wall of the spinal canal. In reporting his results, he showed that in his control group of ninety-two patients, sixteen of these or 17.4% developed typical post-puncture headache. In his experimental series upon which he used the catgut, only five of the 102 patients developed the typical headache. In commenting on these results, Nelson states: "The low incidence of postlumbar puncture headache in patients in whom catgut is inserted at the lumbar puncture, supports the hypothesis that leakage is the cause of postpuncture headache."

Working along similar lines, Heldt,⁶ following the introduction of anhydrated catgut into the puncture hole, reported no headache subsequent to spinal puncture in a series of fifteen cases, while in a control group two cases developed severe headaches.

Heldt went a step farther in his experimentation, and proved that spinal fluid does escape from the puncture hole in the dura into the epidural spaces. In a considerable number of cases he did a secondary puncture from three

hours to five days following the first puncture. At the time of the second puncture the needle was inserted only to the depth of the epidural space (verified by manometric observation) and from it spinal fluid was repeatedly recovered that had leaked into it (the epidural space) from the previous puncture. In another of his experiments he inserted a large canula of the Hoyt type in the epidural space and in the same interspace just above the Hoyt canula, an 18 or 19 gauge needle was inserted into the subarachnoid space. The spinal needle was then withdrawn from the spinal canal and it was noticed that no fluid escaped from the Hoyt canula, but when both jugulars were compressed, spinal fluid dropped from the previously dry canula. Heldt, in commenting on this experiment, states: "To do so, the fluid must escape from the puncture hole in the dura mater into the epidural space and out through the Hoyt canula. This and other observations have convinced us that leakage of spinal fluid into the epidural space after lumbar puncture is an established fact. . . ." In his conclusion, he adds: "Spinal fluid leakage from the hole in the dura following lumbar puncture is an important casual factor in post-lumbar puncture headache."

Kennedy⁹ studied the actual process of thecal puncture on an anesthetized calf on whom the lower thoracic cord had been exposed by laminectomy. He followed the technique of puncture as used in the human subject and injected a brilliant green dye in order to observe more readily the behavior of the spinal fluid. He noted that immediately after the withdrawal of the needle, there was a sharp gush of fluid which ceased quickly when a fine needle was employed, while after the use of an 18 gauge needle, slight oozing persisted at the end of an hour in two of five cases.

Various other unimportant factors have been enumerated by numerous authors and as a matter of record are merely mentioned here in passing. Nelson⁸ disproved the effect in the production of headache of (a) differences in patients with respect to sex, weight and temperament; (b) amount of fluid withdrawn; (c) difficulty of inserting needle in the canal; (d) presence or absence of fresh blood in the fluid removed. MacRobert¹⁰ adds to these the position of the patient during puncture, the degree of existing

pressure in the spinal fluid at the time of puncture, and the disease condition of the patient. DeCourcy¹¹ comments on the unimportance of present day spinal anesthetic drugs in the causation of post-spinal-anesthetic headache.

From the work of these authors, it must be conceded that post-lumbar puncture headache is established as due to the seepage of cerebrospinal fluid from the puncture wound in the dura.

The Physiology of Spinal Puncture Headache. Clinically, two important types of postpuncture headache have been recognized, and include (a) that caused by a decrease in the cerebrospinal fluid pressure, and (b) that caused by an increase in the cerebrospinal fluid pressure.

In considering the mechanism involved in the production of postpuncture headache due to decreased cerebrospinal fluid pressure, the theory advanced by MacRobert¹⁰ appears the most feasible and is concerned primarily with the closure of the puncture hole in the dura mater. Briefly, his explanation, in abstract, is as follows: The spinal puncture needle which penetrates the tough dura mater leaves a clean-cut hole. The arachnoid tissue, as it drops from the point of the departing needle, is swept snugly against the dura mater by the pressure of the fluid within, thus blocking the hole. If the puncture hole is not blocked, it is because the delicate arachnoid membrane clings around the retreating needle and is pulled through the hole in the dura mater, thus forming a wick or spout for the drainage of spinal fluid.

With the cerebrospinal fluid constantly leaking into the epidural spaces for a week or so subsequent to the spinal puncture, the fluid support of the base of the brain is destroyed, allowing the forcible descent of the pons on the clivus when the patient sits up. The basilar plexus on the clivus of the occipital bone is formed by an extensive anastomosis of flat venous plexuses which depend on the cushion of cerebrospinal fluid to keep off the pressure of the pons which is directly above. When the patient sits up, and the cushion of fluid is absent, the weight of the brain is suddenly imparted through the pons to the communicating plexus, forcing the blood about to leave the skull to turn back and travel by other congested channels. MacRobert explains the headache at this point, as follows: "The sudden onset of severe headache

when the patient sits up can now be understood as due to the rise of pressure in the cerebral veins; its entire relief when the patient lies down is due to the fall of pressure when the weight is removed from the veins on the clivus."

Another theory which pertains to an inhibition of the secretory power of the choroid plexus has been advanced by Dana¹² and Zappalá.¹³ The latter reports a study of one hundred patients presenting cephalalgia following spinal anesthesia, in which he found a marked hypotension in a majority of them.

The headache due to an increase in cerebrospinal fluid pressure has been conceded by Stillwell,¹⁴ Anderson,¹⁵ Pitkin,¹⁶ and others, as being due to meningeal irritation, unquestionably from poor technique in the performance of the spinal puncture. Kennedy⁹ offers his suggestion for the mechanism involved in its production, as follows: "The leakage of cerebrospinal fluid from the dural puncture is greatest during the first 21-24 hours. The leakage stimulates the choroid plexus to pass into the cerebrospinal fluid spaces an increased amount of fluid. This addition of fluid does not cease immediately after the puncture has become sealed, and thus the condition of increased intracranial tension arises."

The Symptoms of the Different Types of Postpuncture Headache. Evans,^{17, 18} has published an elaborate and complete description of the various types of postpuncture headache and a brief resumé is given. He divides the headache, following spinal anesthesia into (a) lumbar puncture headache, or that due to decreased cerebrospinal fluid pressure; (b) meningitic headache, or that due to increased cerebrospinal fluid pressure, and (c) meningeal reflex headache, a mild, transient type.

Lumbar Puncture Headache is the most common and is characterized by an occipital or parietal headache, appearing the first twenty-four hours after operation and gradually increasing in severity. The headache is *worse* when the head and shoulders are raised, but completely *disappears* when the head and shoulders are lowered. *No drugs give sufficient relief to allow the patient to sit up and do any form of work.* A lumbar puncture during the course of the headache will show a hypotension of the cerebro-

spinal fluid and the fluid will show a decrease in the cell count and globulin content.

The Meningitic Headache (if a pure drug is used) is characterized by a stiff neck and photophobia and other symptoms of meningeal irritation, and although it is made worse by raising the head and exercise, *it is not relieved to any extent by lowering the head.* This type of headache, however, may be relieved by the use of the ordinary sedatives. A lumbar puncture during the course of the headache shows an increase in the spinal fluid pressure and an increase in cells and globulin content.

Meningeal Reflex Headache, is the mild headache which occurs two to three hours after the spinal injection and is usually gone by the third postoperative day. This type is irrelevant and not considered in this discussion, as it does not come under the category of intractable headache.

PROPHYLACTIC MEASURES

The reported decrease in the incidence of postpuncture headache following diagnostic spinal puncture (15%-25%) as compared to that occurring subsequent to spinal anesthesia (less than 3%) has been brought about by the observance of certain precautionary measures. Anderson¹⁵ and others advocate the absolute immobility of the patient while the spinal needle is being inserted and during the time it is in the spinal canal to obviate tearing a rent in the dura mater. Evans,^{17, 18} recommends the Trendelenburg position for twenty-four hours after the puncture to facilitate the formation of a fibrin clot to close off the dural puncture hole. Pitkin¹⁶ and his many followers use the Pitkin needle of rustless steel, 20-22 gauge, with a short bevel of 45°, the rear portion of which is rounded so that it cuts a trapdoor in the dura which closes by the intradural pressure when the needle is withdrawn. Kennedy⁹ advised against withdrawing the spinal needle with a jerk, especially if done without the introduction of the stylette, as the aspirating effect of the opening end of the needle is liable to suck the free edge of the flap right through the puncture hole in the dura and thus create a definite opening. MacRobert¹⁰ proves the value of rest in bed of eight days to two weeks postoperatively, by citing as an example operations on the spinal cord in which much spinal fluid is lost, stating: "That after spinal

cord operations the patient is kept on his back for at least two weeks; lumbar puncture headache is not in evidence while the patient is on his back, and the situation responsible for it, whatever it is, is never present, even in the worst cases, for as long as two weeks."

TREATMENT OF POSTPUNCTURE HEADACHE

Evans^{17, 18} has gone into quite detailed account of the management of each type of headache, which briefly is as follows:

Meningitic Headache, or that due to increased cerebrospinal fluid pressure, includes (a) keeping patient flat in bed with an ice bag to the head; (b) elimination of all excitement and stimulating drinks; (c) repeated lumbar puncture to relieve the spinal fluid pressure; (d) diuretics, cathartics and hypertonic salt solutions by mouth and intravenously, if necessary. Anderson,¹⁵ Koster,¹⁹ and others, include retention enemas of six ounces of a 50% solution of magnesium sulphate, repeated every four hours if necessary, in this regimen.

Lumbar Puncture Headache, or that due to decreased cerebrospinal fluid pressure, is managed by Evans in the mild cases by (a) placing the patient in Trendelenburg position for twenty-four hours; (b) removing all forms of stimulation and excitement; (c) injecting intramuscularly one ampule of surgical pituitrin or ephedrine hydrochloride $\frac{3}{8}$ gr. (0.024 grams) to $\frac{3}{4}$ grs. (0.048 grams). In the more severe cases he advocates (a) hypotonic solution of saline intravenously, about 100 cc. of a 0.5% sodium chloride; (b) forcing fluids, one glass of water every hour by mouth, and if this is impossible, to give 1000 cubic centimeters every six hours by the Murphy drip.

Various other authors have attempted to treat the headache due to decreased cerebrospinal fluid tension by the direct restoration of the spinal fluid pressure to normal. Frazier⁴ suggests an isotonic solution directly into the spinal canal. Heldt⁶ injected twenty to thirty cubic centimeters of distilled water or normal saline into the epidural space, interrupting the headache temporarily from 3-48 hours. Zapallá¹³ found that intravenous and subcutaneous injections of caffeine, ephedrine, epinephrine-ephedrine, and ergotamine tartrate have only an evanescent effect, while the intradural injection of a 1%

solution of dextrose causes the headache to disappear during the injection and when the mercurial manometer shows a pressure of from 21-23.

REPORT OF A CASE

Mrs. M. D., white, aged 30 years, a patient of Dr. McDonald Scott, was admitted to the Mother Cabrini Hospital on March 26, 1934, for an emergency appendectomy. I administered the spinal anesthetic, introducing 3 cubic centimeters (300 mgs.) of spinocain in the third lumbar interspace, with the patient in the lateroerect position in accordance with the technique as advocated by Pitkin.²⁰ A laparotomy was performed by Dr. Scott, who attended her subsequently. The post-operative course was uneventful until April 2, 1934, the seventh postoperative day, shortly after her sutures were removed and she was allowed to recline propped up on pillows. After having assumed this semi-reclining position for about fifteen minutes, she developed a slight headache which was relieved immediately by five grains each (0.324 gms.) of acetylsalicylic acid and amidopyrin. The following morning, April 3, 1934, she was placed in a wheelchair and in about ten minutes after assuming this sitting position, her head began to ache severely and she asked to be put back to bed. She was given two doses of acetylsalicylic acid and amidopyrin, grains 5 each, at four hour intervals, and this relieved her headache sufficiently that afternoon to allow her to go home sitting up in a taxicab. However, as soon as she arrived home, the headache returned with increasing severity and she immediately retired, getting prompt relief as soon as she assumed the recumbent position.

The course from this time on was progressively worse. Any attempt on her part to raise her head would cause a severe headache, which would subside as soon as she lowered it again. She could not tolerate a pillow under her head, as this would induce a headache. Dr. Scott attended her daily, administering subcutaneously and intravenously such preparations as caffeine, pituitrin, ephedrin and epinephrine with only slight relief, and he found further that this was one headache he was unable to relieve with any form of sedative or narcotic. On April 14, 1934, the 21st post-operative day and the 12th day following her first headache, the patient showed signs of exhaustion, which was due to her inability to sleep, as the mere turning around in bed to assume a more comfortable position would produce a headache that would arouse her.

She was readmitted to the Mother Cabrini Hospital at 3 p. m. on April 14, 1934, and the only finding of significance was a slight rigidity of the neck when the head was flexed. I proceeded to do another spinal puncture, using a 17-gauge needle which had been salvaged from an unused antimeningococcic serum package, but encountered great difficulty in drawing spinal fluid, despite the fact that I "felt sure" I was in the subarachnoid space. However, after waiting one or two minutes, rotating the needle the meanwhile, the fluid finally did drop out of the needle, but it was blood tinged and each drop appeared about 20-25 seconds apart. The stylette was replaced while a

smear of the spinal fluid was examined for organisms. None was found. A fifteen cubic centimeter vial of antimeningococcic serum was attached to the needle and the serum allowed to flow into the canal by gravity. She complained bitterly of a backache as well as a headache, after this operation, and it was necessary to give her $\frac{1}{4}$ grain (0.0162 grams) of morphine by hypodermic for relief. She spent an uneventful night and in the morning, April 15, 1934, she awakened much refreshed and was able to eat her breakfast propped up on a backrest, with no complaint of headache, but of a slight backache. She spent an uneventful day and the following morning she was discharged from the hospital, walking to a waiting taxicab unassisted and without backache or headache.

For four days following her discharge from the hospital the last time, the patient was in the best of health and completely relieved of her previous annoying symptoms, but on the fifth day (the sixth day following the injection of the serum) she developed a severe serum reaction consisting of a generalized urticaria of giant wheals, associated with pruritus that almost drove her to distraction. This condition persisted for three days in spite of all of the treatment to combat it, and she stated frankly that as bad as the headache was she would prefer it to this terrible itching condition. On the 4th day following the first appearance of the rash she cleared up entirely and since that time she has been able to work and be up and about.

COMMENT

The explanation advanced by MacRobert relative to the ultimate healing of the dural hole with the protruding "wick" of arachnoid tissue, in my opinion, has left several factors unexplained. He presupposes that the arachnoid tissue *clings* to a highly polished needle, that the dural hole retracts and enlarges sufficiently in circumference to allow this clinging membrane to come through with the departing needle, and finally, this wick which has been thus formed closes off in some manner while still protruding through the dural hole despite the fact that the spinal fluid is seeping through continuously.

In the reports of Nelson⁸ and others who have examined the dura mater in humans following spinal puncture, none has observed the arachnoid adherent and protruding through the dural hole, although the puncture holes have been unmistakably identified. The formation of the trapdoor or flap as recorded by Pitkin²⁰ and verified by Kennedy⁹ and others, seems to me to be the logical basis for the continued loss of spinal fluid following spinal puncture, with the resultant headache.

The sequence of events as I interpret them are as follows: The trapdoor or flap formed by the spinal puncture needle is impinged upon by the arachnoid tissue, either by the suction created by the retreating needle or by the intradural pressure. This makes it impossible for the trapdoor to close and thus creates a direct channel between the subarachnoid and epidural space through which the spinal fluid leaks. The possibility of the closure of the dural hole under these circumstances is quite remote. However, with the continuous seepage of spinal fluid from day to day, and the resulting decrease in cerebrospinal fluid pressure, it becomes apparent that the once tense arachnoid sac eventually becomes lax and flabby. Spontaneous disengagement of the arachnoid from the trapdoor may occur at such a time when the cerebrospinal fluid pressure has decreased sufficiently to allow the arachnoid tissue to fall away from its attachment. The flap thus released drops back into its normal position, closing the aperture and preventing the further leakage of spinal fluid with the resultant spontaneous cessation of the headache.

Another mechanism (most probably the one instrumental in the case reported) pertains to the introduction of a blunt end spinal needle or a large calibered spinal needle through the dura mater and against the lax and flabby arachnoid. This membrane will "give way" considerably before it can be punctured and during this process of "giving way," the arachnoid will be literally pulled away or dislodged from its attachment to the trapdoor, allowing it to fall back and close the aperture. Another feature which must be considered is the introduction of a fluid whose viscosity is greater than that of spinal fluid which aids in plugging up the dural hole and the consequent relief of the headache.

With the numerous refinements in the technique of spinal puncture and the increased knowledge of the causation of spinal puncture headache, the incidence of postpuncture headache shows a marked decrease. In my series of 1136 patients to whom spinal anesthetics were administered, only one developed a typical headache, an incidence of less than 0.1%.

The recent trend of treatment of headache due to decreased cerebrospinal fluid pressure points to the use of intraspinal therapy to bring the

pressure up to normal, and a consideration of the fluid to be used is most timely. The anti-meningococcic serum used in my case was a valuable emergency aid in the immediate treatment of the headache, but the severe serum reaction which followed almost precludes its use routinely. The 1% solution of dextrose advocated by Zapalla and which proved so successful in his series of cephalalgia, could be of great aid if it were available for immediate general use. An ideal fluid, in my opinion, would be one that was non-irritating and non-toxic, with a viscosity greater than spinal fluid and available in easily accessible and sterile form, preferably in vial containers similar to those used for intraspinal therapy at the present time.

Mother Cabrinia Memorial Hospital, 1200 Gilpin Place.

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POISONOUS SPIDER BITES IN ILLINOIS WITH CASE REPORTS

TOM KIRKWOOD, M. D.

LAWRENCEVILLE, ILL.

The *Lactrodectus mactans*, or Black Widow spider, is common in Illinois during the summer and autumn months. Its bite produces an acute poisoning which simulates the clinical picture seen in acute surgical conditions of the abdomen to such an astonishing degree that every one should be familiar with it. Bogen¹ is authority for the statement that some of these cases of spider poisoning have been operated on, by mistake, for such conditions as acute appendicitis, perforating gastric or duodenal ulcer, acute pancreatitis, etc. Other cases have been mistaken for biliary or renal colic, the above mentioned diseases or acute poisoning of various sorts. From the standpoint of differential diagnosis alone, poisoning from the bite of the Black Widow is well worth one's acquaintance.

During the last three years, four cases of poisoning due to the bite of the Black Widow have come under my observation. Several others have been seen by physicians in this community. According to Bogen² this spider has not been previously identified in Illinois, and it necessarily follows that poisoning due to its bite has not been heretofore reported from this state. McShane³ confirms this statement. Many cases of poisoning from spider bites (250) have been reported from California. More than a hundred cases have been reported from various southern states and from the southwest. It is either rare in the northern part of the United States or has not been recognized. One case has been reported from Ohio, two from Pennsylvania, one each from Maryland and Massachusetts, two from Kansas, and one from Colorado. No cases have been reported from the states bordering Illinois, or from other nearby states such as Michigan and Minnesota. The Black Widow has not been identified in any of these states excepting Kentucky and Missouri. In Bogen's⁴ last comprehensive report on this subject, he lists a total of three hundred and eighty cases reported from eighteen states. Seventeen deaths occurred in this group.

Palmer⁵ says: "Spider poisoning presents so vivid a clinical picture that, once seen, it will

never be forgotten. When you see one case you see all." This applies to the cases I have seen. There is usually a stinging sensation, or a sensation like a pinch, at the location of the bite. Since the pain extends by continuity from the location of the bite before becoming generalized, Bogen⁶ suggests that the venom is carried by the lymphatics. In thirty minutes or an hour after being bitten, the pain is quite general throughout the body and is very severe. The patient's face is usually red and congested. He is very restless and anxious, and breathes with difficulty. One of my patients said that he felt as if he had a current of electricity running through his arms and legs. There are cramps and spasms in all of the larger muscle masses of the body. This is most noticeable in the muscles of the abdominal wall, which are hard and boardlike. As a rule the abdominal wall is not tender on pressure. The muscle spasms may be intermittent. The unusual abdominal symptoms may lead to needless surgical interference. Having seen one patient in whom a gastric ulcer had perforated, and another with a severe case of spider poisoning, within a period of two weeks, I can easily understand how such a mistake may be made. Retention of urine may occur. The patient often tosses about on the bed on account of the severe agony. The illness following a bite may be over in eighteen to twenty-four hours in the milder cases, and may last from four to seven days in those which are severe. During this time there may be a moderate rise in temperature. The pulse is usually slow. The systolic blood pressure is increased as a rule. The reflexes are over-active. Constipation is usually present.

CASE REPORTS

Case 1. R. B., white, male, aged 36 years. Excellent physical condition. Bitten on glans penis about 8 p. m., October 3, 1931, while seated in outdoor toilet. Noticed a sharp stinging sensation in the glans and on examination found a small red spot just to one side of the meatus. Pain noticed in groins in a few minutes and within 30 minutes was generalized. His teeth chattered. He was very nervous and soon had severe muscular cramps in abdomen and legs. At times he was delirious. The abdomen was rigid and apparently slightly distended. There was a constant bearing down sensation in the lower abdomen and retention of urine, which required repeated catheterization for relief. Three quarter-grain hypodermic injections of morphine were given that night before relief was obtained. He slept very little. The pain recurred at 11 a. m. on

October 4, and a hypodermic injection of one-half grain of morphine, and three grains of sodium amytal by mouth gave fair relief. There was still a constant desire to urinate. Difficulty in breathing was marked and the patient tossed and squirmed about on the bed.

The temperature at this time was 100° F. and the blood pressure was 165/90. At one-thirty p. m. on October 5 it was necessary to repeat the morphine and sodium amytal, and during that day two more doses of these drugs were needed for relief of pain and cramps. The pulse during the entire illness was slow, never exceeding 72. On October 6 the pain was still present but much improved and within a few days the patient was able to leave the house. There was marked muscular soreness for a few days, probably as an after effect of the cramps.

Case 2. H. S., white, male, aged 38 years. Excellent physical condition. Bitten at 6 a. m., October 13, 1932, just below left elbow. The spider had crawled into his work shirt during the night and the bite occurred while the patient was pulling the sleeve of the shirt onto his arm. The bite felt like a pin prick and left a tiny red spot. Within five minutes he felt a pain in the left axilla and in forty minutes the cramps started in the abdomen. In an hour the pain was general, but most severe in the abdomen and back. The patient was short of breath and rolled and tossed on the bed. After a paroxysm of pain he would relax and feel better for a little while and then the cramps would recur and he would have difficulty in breathing. The abdomen was board-like. He said he felt as if he had an electric current running through his arms and legs. One hypodermic of morphine ($\frac{1}{4}$ grain) and three grains of sodium amytal gave very good relief. The pain recurred in six hours but was relieved by a capsule of sodium amytal and a quarter-grain of morphine by mouth. The entire attack lasted twenty-four hours and there were no after effects other than muscular soreness and weakness.

Cases three and four were much like case No. 2. One was bitten on the dorsum of the foot while pulling on a shoe and the other was bitten just below the left axilla.

As a rule the prognosis in spider poisoning is excellent, but in cases of advanced myocarditis, or in severe renal disease, one of the poisonous bites can easily lead to serious consequences.

Immediate relief from pain is the principal thing called for in treatment. Morphine has given good results in the cases reported here and its action was aided by the use of one of the barbitol derivatives. Magnesium sulphate has been used intravenously and should give good relief from the muscle cramps and spasms. Bogen⁷ reports excellent results from lumbar puncture. He has also used convalescent serum with good results, but this is not available for the usual case. He warns about over-dosing patients with drugs in order to obtain relief, as

injudicious treatment may cause serious trouble. Any treatment applied locally to the bite is apparently not only useless, but may be dangerous. It may open up the tissues to secondary infection. Warm applications or warm baths are always of use in these cases, and give great relief.

Bogen describes the *Lactrodectus mactans* spider as follows:⁸ "*Lactrodectus mactans* is a shiny, coal-black spider usually brilliantly marked with red or yellow or both. The female, which is responsible for the poisonous bites reported, is often one-half inch in length when fully grown, and may stretch its slim glossy black legs over as much as two inches. The markings vary somewhat, the most constant being a bright red patch, shaped somewhat like an hour glass, on the ventral surface of the abdomen." During the last two years we have kept two large females in glass jars, supplying sufficient food and water to keep them in good condition. Each prepared one or two egg sacs and within about one month after these were completed, young spiders, grayish in color, emerged from them in great numbers. If this is allowed to occur in a dwelling a heavy infestation with *Lactrodectus mactans* is most certain to follow during the next year. The adult spiders are usually found in out-buildings, under stones, and along fences. In late summer and in the autumn there is a tendency for the spiders to enter dwelling houses, possibly because flies and insects are more easily found near dwellings at this time of year. In dwellings the spiders often crawl into shoes, and clothing or even into beds. In October and November the search for warmth may attract the spiders to these places. During the warmer months the spider often builds its ragged and irregular web below the openings in the seats of out-door toilets. This accounts for the frequent cases in which the bite occurs on the penis. The poison sacs of the *Lactrodectus mactans* are greatly enlarged, probably accounting for the seriousness of its bite. The poison ejected from these sacs is a neurotoxin and is more potent than the venom of the rattle snake.^{9 10}

CONCLUSIONS

1. The *Lactrodectus mactans* spider is common in Illinois during the summer and early autumn.

2. Its bite produces a clinical picture which is easily mistaken for such abdominal catastrophes as perforation of gastric or duodenal ulcers or the appendix, and may lead to needless operative procedures, if not correctly diagnosed.

3. This spider should be recognized and killed when found in dwelling or in out-houses. 1209 State Street.

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RUPTURE OF QUADRICEPS TENDON ABOVE PATELLA WITH SURGICAL REPAIR

F. G. MURPHY, M. D.

CHICAGO

While a tension fracture of the patella, which is considered a sesamoid bone in the quadriceps tendon, is a fairly frequent injury, rupture of the tendon either below or above the patella is quite rare. Lenormant and Olivier state that it occurs in patients over 40, whose muscles are weakened by advance of years or diseases such as arthritis, diabetes and arteriosclerosis.

The direct cause of rupture may be a strong pull of the quadriceps due to muscular effort or to a direct blow. Four muscles converge at this area; the vastus medialis, the vastus lateralis, the vastus intermedius and the rectus femoris. The three vasti form a fascial sheath which unites to the upper portion and sides of the patella in the form of tendinous aponeurosis. The rectus femoris tendon remains separate to within a very short distance of the patella.

Rupture may occur through all components of this muscle tendon group or through part of them, and depending on the extensiveness of the tear, there is more or less separation of the torn edges. Hemorrhage and tissue fluid effusion

occur which causes marked swelling that masks the diagnosis. Later, if there has been no operative repair, there is organization of blood clot, fibrosis and a fibrous union, with a considerably shortened muscular mass. H. W. Meyerding reports such a case in a patient who treated himself after a diagnosis had been made. His result was good but he had weakness of the knee. Meyerding also states that ossifying hematoma may occur if no treatment is carried out.

The symptoms vary with the extent of the rupture. There is pain at the knee, the disability is immediate and complete, the patient on trying to rise collapses, and there is inability to extend the leg at the knee. Swelling occurs rapidly and causes a bulge above the knee joint, and the parapatellar spaces are eliminated. On palpation there is a distinct transverse furrow just above the patella from 1.5 to 2 inches wide. On voluntary flexion of the thigh muscle, this furrow is widened and there is bulging of the quadriceps mass at the same time. The patellar reflex is absent. Aspiration of the area reveals blood from the hematoma.

X-Rays: Anteroposterior views are negative. Lateral views may show a decrease in density just above the patella.

The diagnosis is made on the findings as given and the history of trauma, either direct or indirect. In the differential diagnosis, one must consider fractured patella, severe sprains, rupture of the fascia lata, rupture of the patellar tendon, internal derangements of the knee joint, fractures of the femoral condyles, hemophilia and contusions.

The prognosis is good if operated on. If not operated on, there will be union but with an elongated quadriceps tendon that will considerably weaken the quadriceps muscle. Lenormant and Olivier report a series of 85 cases in which no operative treatment was used. These results were: Good, 34; Poor, 35; Bad, 16.

The treatment consists in operative repair under general or local anesthesia. I believe the outlook is better if the leg is immobilized and operation postponed for about a week to allow traumatic inflammation to subside and to allow possible local immunity against infection to be established. The hematoma should be removed and the different components of the quadriceps tendon identified, accurately approximated and

sutured with absorbable material. We should avoid penetrating the knee joint, if possible. The knee should be immobilized with a long Thomas splint for about two weeks. Then passive movement and later active movement should be prescribed.

Case 1. Physical examination reveals a well nourished, well developed male, aged 62 years. He was brought to the hospital July 24, 1933, complaining of severe pain, swelling and absolute weakness of the right knee. Three hours before, patient fell from a street car step, striking his knee against a sharp curb. He arose but immediately fell again, because he could not straighten the right leg. His past history revealed no serious illnesses or accidents, but he had a varicose ulcer on this leg just above the ankle for several years. On examination, there was seen a swelling above the right patella which was soft and fluctuating. Deep palpation revealed a sharply defined space about 1 inch wide, just above the patella and extending deeply toward the femur. On attempt to extend the leg, this space widened. X-rays showed no abnormalities in the bone about the knee, but a lateral view revealed decreased density in the soft tissues just above the patella. A diagnosis of ruptured quadriceps tendon was made. It was decided to immobilize the leg in a Thomas splint until the acute symptoms subsided. Moderate pressure was applied. On August 1, eight days after the original injury, operation was performed under avertin anesthesia. A longitudinal incision was made from the junction of the middle and lower thirds of the thigh down over the patella. There was encountered a considerable amount of clotted blood above the patella and hemorrhage into surrounding deeper tissues. Upon removal of the clot, there was seen a rent occurring through the rectus femoris muscle tendon: also a rent through the vastus intermedius, one almost completely through the vastus externus and a rent extending obliquely upward and inward partially through the vastus internus. These structures were identified and the deeper portion of the wound explored. The rents did not extend into the knee joint but to the wall of the sub-femoral bursa. The torn edges of the vastus internus, the vastus intermedius and the vastus externus were approximated by traction. They were sutured with 20-day chromic gut. The rectus femoris torn edges were approximated and sutured likewise. The fascia lata, deep tissues and skin were sutured and two drains inserted. The leg was immobilized in a Thomas splint with moderate pressure applied and elevated at about a 20° angle. The post-operative course was uneventful. The drains were removed on the fifth post-operative day. There was a slight sanguineous discharge. On the 17th post-operative day the patient could move the leg without causing pain. He was advised not to do this until another week passed by. The leg was removed from the Thomas splint on the 22nd postoperative day. There was between 10° and 20° movement in the knee. Patient had the power of voluntary extension of the leg, which caused little or no pain. On November 16,

1933, the patient had good function of the quadriceps muscle and movement from 100° to full extension. He walked with only a slight limp.

9204 Commercial Avenue.

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PAINLESS CORONARY OCCLUSION

FRED STENN, M. D.

CHICAGO

James B. Herrick¹ has said: "Acute coronary obstruction has so naturally and unconsciously been associated in our minds with angina pectoris in which pain is almost by definition a part of the symptom-complex, that it is difficult to eliminate this feature from our clinical conception of the accident. Yet it is clearly established that painless acute obstruction occurs."

I am reporting the following case: Aged 52 and a carpenter always in an admirable state of health, the patient is a sturdy Lithuanian, who on December 1, 1934, developed a severe cold. He went to bed, felt badly, sweated much, coughed strenuously and had fever which his physician told him was due to influenza. His condition failed to improve in one week. On December 7, 1934, at 1:30 a. m., after a spasm of cough, he became suddenly dyspneic, extremely weak, cyanotic, and went into collapse. He complained of palpitation, nausea and air hunger and whispered that he was dying. When I saw him at 2 a. m. he was extremely dyspneic, breathing 30 times per minute, laboring for his breath as in cardiac asthma. The pulse was 120, regular and very feeble, the blood pressure 118/70. The lips and finger nails were deeply cyanotic, the face of an ashy hue. The temperature (oral) was normal. The brow was covered with fine beads of cold sweat. The extremities were cool to the touch. The tongue was coated. The heart was only slightly enlarged to the left at its apex and a faint systolic blow heard over the mitral area, but the quality of the heart tones was good. The lungs showed numerous fine moist inspiratory rales posteriorly. The abdomen was negative. Neurologic examination revealed nothing significant. At 12 a. m. and again at 6 p. m. his condition remained unchanged, the dyspnea still marked and continuous, the cyanosis of the lips and nails deep, and the physical findings the same.

Brought to the hospital he was placed under the oxygen tent, where he remained for the two succeeding days. Caffeine sodio-benzoate and strychnine were administered frequently. On the 2nd day he developed hoarseness which continued for one week. Laryngoscopy showed acute laryngitis. A mild cough was

present. The temperature became irregularly septic, reaching 101.6° the second day, 103° the third, and gradually returned to normal.

The W. B. C. was 21,400, the R. B. C. 4,810,000, Hb, 90%, color index 0.93, lymphocytes 20%, and neutrophils 80%, and Wassermann negative. X-ray of the chest showed very little enlargement of the heart or aorta, considerable increase in density of the bronchi and bronchial lymphatics and enlarged glands in both hila. The left side of the diaphragm was slightly elevated. The electrocardiogram taken seven days after the attack showed slurred Q. R. S. in lead III, low voltage of T in lead I, diphasic T in lead T, negative T and negative P in lead III, pointing to myocardial damage and coronary disease.

By the third day the dyspnea and cyanosis had completely disappeared, the pulse improving in quality. A friction rub was heard at no time. One week later the patient was removed to his home, where he has been since confined strictly to bed, and doing well.

The painless coronary lesion has been described by Krehl² and the other clinicians of the latter part of the nineteenth century. In 1921 Gallavardin³ called attention to patients who die of myocardial infarction without pain displaying tightness and oppression in the chest. In his study of a group of 19 cases of coronary thrombosis at Peter Bent Brigham Hospital Wearn⁴ found that 16 showed as the prominent and constant feature, dyspnea, and of these, 4 showed such severe dyspnea as to completely overshadow the other symptoms. One of his patients was seized suddenly with acute dyspnea, gasping for air while sitting up in bed, and physical examination failed to display the cause for the attack. In another the dyspnea was so severe that the patient jumped from bed and ran outside for air.

East, Bain and Cary⁵ reported 7 cases of cardiac infarction without pain.

One of particular interest was that of a police sergeant aged 57 always in a good state of health, had influenza in February, 1926, from which he made a normal recovery, again taking ill with a cold and confined to bed because of increasing dyspnea and a severe cough. Though he recovered, dyspnea became persistent and he walked only with great respiratory difficulty. There was no pain. In January, 1928, he was very pale, the pulse 134 and regular, the B. P. 140/90 and the heart slightly enlarged to the left. There were no murmurs, edema, or liver enlargement. The E. K. g. showed only left ventricular preponderance. On February 10 he died suddenly in bed, pain having occurred at no time. Necropsy showed thrombosis of the anterior descending branch of the left coronary artery and two large branches of the right coronary. The myocardium showed extensive fibrotic disease.

Their other cases were clinically similar, all attacked by sudden severe dyspnea followed by

heart failure. Though recovery of mild degree occurred in some of the cases the patients were never well again. The physical signs were the same as in cardiac infarction with pain, viz, enlargement of the heart to the left, gallop rhythm at the apex; some showing extra systoles, some pulsus alternans. Most of these died within a year after the initial attack. Parkinson and Bedford,⁶ Aubertin and Lereboullet,⁷ and S. Marx White⁸ have each contributed to our meager knowledge of this subject. N. S. Davis III⁹ in his analysis of the cases of coronary occlusion encountered at Northwestern University Medical School and Alexian Brothers Hospital, Chicago, showed a 40 per cent. incidence of the absence of pain. Hay¹⁰ emphasized that pain is more likely to be absent in second or third attacks, dyspnea and shock being the outstanding features.

The cause of the painlessness is not altogether clear but some of the ideas in this regard are at least suggestive. In their experimental work Sutton and King¹¹ have observed that the degree of pain produced by ligation of the coronary arteries in dogs varies with the animal, some more sensitive to pain than others. In this regard Crummer¹² explains that "the so-called angina pectoris sine dolore occurs particularly, perhaps mainly, in the hypersensitive person. A slight pain in a hypersensitive individual can usually be evaluated as though it were a severe pain. In the hyposensitive person a complaint of burning or pressure most often can be looked upon as the equivalent of what would be pain in a normally sensitive person . . . instead of pain one may find the outstanding manifestation to be some such symptom as vertigo, weakness, belching, sweating, or dyspnea." Yet a small proportion of the patients who have painless coronary attacks are truly hypersensitive displaying the most delicate sensitivity to painful, emotional and mental states.

Herrick¹ explains the absence of pain as due to the presence of silent and indifferent areas in the myocardium which are little sensitive to pain and that gradual progressive narrowing of the coronary artery leads to fibrosis with "destruction of vessels, nerves, and functioning muscles, so that a painful response for a new obstruction is lacking." Some of the necropsies, however, performed on the painless coronary cases have

shown only fresh infarcts unassociated with any previous necrosis of the myocardium or marked diminution of the lumina of the coronary arteries.

These experiences with the absence of pain in acute coronary occlusion are stimulating to the physiologist as well as the clinician, and question the sources and mechanism of painful stimuli in this only too recently known lesion.

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SILICOSIS

WENDELL STEWART, M. D.

EAST ST. LOUIS, ILL.

Dusts are among the major industrial hazards of our time. It has been estimated that ten per cent. of all workers are exposed daily to potentially dangerous concentrations of dust.¹ Some dusts are dangerous from their toxic effect, others for the reaction that they cause within the lungs.

Dusts containing free crystalline silica or fibrous silicates as asbestos are the only ones known to produce interstitial fibrosis of the lungs. Chalicosis, anthracosis and siderosis are terms descriptive of the dusts inhaled.² It is now well established that in the absence of silica or fibrous silicates, that the change produced by the inhalation of coal, iron, gypsum and other dusts is pigmentation of the lungs, or if the exposure continues over a considerable period of time that there may be moderate permanent thickening of the connective tissues in the pleura, interlobar

Read before the Belleville Branch of the St. Clair County Medical Society.

septa and the adventitial coats of the blood vessels and bronchi.³ This process is but a somewhat greater degree of the "lymphatic pneumoconiosis" that is present to some degree in nearly all adult city dwellers.³ This rarely interferes with health.

Silica and certain fibrous silicates tend to incite an active fibrosis of the lung tissue that may interfere with function. By no means all of those exposed to heavy concentrations of silica, however, contract silicosis. The defense mechanisms of the respiratory tract consisting of the tortuous, mucous membrane lined nasal passages, the pharynx, the cilia of the trachea and the bronchi, the mucous secretion of these passages, the dust cells, the cough, and the lymphatics are effective barriers to much of the atmospheric dust.

Experience gained from the study of a dust hazard in one industry cannot be assumed to apply to another industry or even to the same industry in another location. Among the South African gold miners, silicosis is common.⁴ Yet in the gold fields of India where the concentration of silica is as great, silicosis appears uncommon.⁵ A high incidence of silicosis may appear in one foundry and be unheard of in another foundry in the same area.⁶

Tuberculosis is not the inevitable fate of those afflicted with silicosis. In certain industries, for reasons unknown at this time, tuberculosis follows silicosis in from 20 to 75% of the cases.^{7,8} In other industries, notably among the cement,⁹ foundry⁶ and sandstone quarry workers¹⁰ silicosis is found, but the incidence of tuberculosis is not greater and may be even less than in the general male industrial population of corresponding age. There is considerable evidence that silicosis may retard the progress of pulmonary tuberculosis in some cases.¹¹

Properly made stereoscopic roentgenograms of the chest afford the most nearly accurate method of determining the presence or absence of silicotic fibrosis during life. Technically poor films or those made with relatively long exposures should not be considered. The Roentgen appearance is usually characteristic; the few conditions that simulate the nodulation of silicosis can be differentiated by the history, physical and the laboratory examinations or these failing, by serial study. The numerous conditions that remotely resemble silicosis can be differentiated by a criti-

cal analysis of the Roentgen markings alone. By and large, the presence or absence of silicosis can be determined from the roentgenograms.

The Committee on Pneumoconiosis of the American Public Health Association concluded¹² that "The earliest specific indication of the presence of silicosis is the radiographic appearance consisting of generalized arborization throughout both lung fields with more or less small discrete mottling. This characteristic mottling is due to shadows cast by the discrete individual nodules of fibrous tissue in the lungs and is essential to the diagnosis of silicosis. Without this finding, the diagnosis of silicosis is not sustained except by autopsy."

On stereoscopic roentgenograms of the chest, the hilus shadows are found to be large in early silicosis. There is a fine network of linear markings throughout each lung field. In addition, there are numerous small nodules along these markings. These nodules are small, discrete and symmetrically distributed. The apices and the costophrenic angles do not show nodulation in this stage.

Slide 1. Male. Age 51 years. This man was employed as a jack hammer drill operator in a hard rock metal mine underground for eighteen years. He has no symptoms referable to the lungs. We find on this negative large hilus shadows, a fine arborization and fine nodulation along these linear markings. This nodulation is more apparent on the right side.

"The characteristic radiographic appearance of second stage silicosis is a generalized medium sized mottling throughout both lung fields. The shadows of the individual nodules are for the most part discrete and well defined on a background of fibrous arborization, but there may be here and there larger but limited opacities due to irregular pleural thickening or to a localized aggregation of nodules."¹³

Slide 2. Male. Age 49 years. This man was employed for ten years underground in a hard rock metal mine as a machine man. He complained of some shortness of breath on unusual exertion. On the negative we see a symmetrical fine nodulation on a background of arborization. The hilus shadows remain large.

Slide 3. Male. Age 40 years. Has been employed underground in lead mine for sixteen years as a shoveler. Here again we have the symmetrical nodulation.

Slide 4. Male. Age 50 years. Laborer underground in lead mines for thirty-five years. He complained of some shortness of breath. The nodulation in this slide is somewhat larger.

Slide 5. This man was a coal miner for fifteen years. He then worked in the same room with sand blasters without any protection. At the end of four years he was forced to quit because of shortness of breath. His

dyspnea has been progressive since leaving the dust. The nodulation here is considerably larger and appears to typify that found after the shorter but intense exposures.

"The radiographic appearances in the third stages are further accentuated, the mottling is more intense, the nodules are larger and have taken on a conglomerate form so that large shadows are shown corresponding to areas of dense fibrosis."¹²

Slide 6. White. Age 30 years. This man was employed for three years in a mill in which quartz rock was pulverized without any precautions. The chest film shows a symmetrical distribution of coarse nodulation.

Slide 7. This is a chest film of the same patient made some four months later. There is some conglomeration of the nodules into larger masses. At this time, this patient was extremely dyspneic.

Slide 8. This is the same patient some two months later or six months after the first film. The man died of pneumonia some three weeks after this film was made. Postmortem examination failed to demonstrate any evidence of tuberculosis.

The Roentgen appearance of silico-tuberculosis or tuberculosilicosis is variable. In addition to the symmetrically distributed silicotic nodules, there are dense areas of infiltration or cavitation which show a greater tendency to basilar distribution than the usual tuberculosis. The detection of silicosis in the presence of a massive pulmonary tuberculosis may depend on special postmortem technique with incineration of portions of the lungs.¹³

Slide 9. White. Male. Age 34 years. This man was employed for eight years in a silica grinding mill in which the pulverizing was done dry. At the time this film was made, the patient was bedfast from weakness and dyspnea. There was a low grade fever. Tubercle bacilli were plentiful in the sputum. On the film, we find a symmetrical nodulation and, in addition, massive areas of fibrosis in each upper lung field.

Slide 10. This is a film of the same patient made two months later about one hour after death. The postmortem examination showed an advanced pulmonary tuberculosis with silicosis.

The descriptive phrase "fibrosis of the lungs" like arthritis, covers a multitude of normal and disease states in which the reaction of the lung is an increase in the connective tissue element. There are a variety of conditions that may produce an increase in the lung markings. Among these may be mentioned the changes incident to age, acute and chronic respiratory infections, inhalation of certain irritating gases, heart disease, residual of a healed pulmonary tuberculosis, asthma, emphysema, whooping cough, bronchiectasis, chronic interstitial pneumonia, mediastinal tumors including aneurysms of the aorta and the late results of foreign bodies in the air passages.

Many of the conditions above are manifest by a "reticulum" effect. The bronchovascular markings are numerous, well outlined and send many fine arborizations into the peripheral zone. This appearance has been aptly compared to that of a bare tree. Caution is needed in interpretation of films showing this "reticulum" effect in that pseudo nodulation can be demonstrated in all of them. However, it can be shown that this apparent nodulation is due to the intersection of two linear markings in different planes or to linear markings caught axially. In addition, it is possible in these cases of apparent nodulation to count the total number without difficulty while in the nodulation of silicosis they are far too numerous to count.

Examples of certain of these increased linear markings or the so-called "definitely more fibrosis than usual" will be shown.

Slide 11. This is the chest film of a male, aged 55. He is an office employee, never exposed to more than street dust. He has had mild cardiac decompensation over a period of five years. On the roentgenograms, we see a large heart and a well marked arborization.

Slide 12. This slide is the chest film of a dentist, aged 35, who has never worked in dusty places. He has the characteristic clinical and Roentgen findings of mitral stenosis. We find the hilus shadows are large and that there is an extensive arborization in each lung field.

Slide 13. This patient is 65 years of age. He has been suffering from bronchitis and asthma for years. There is no dust exposure. His chest film shows extensive arborization and apparent nodulation.

Slide 14. This is the chest film of a 65 year old male who has had several attacks of pneumonia but no exposure to dust.

Slide 15. This is the chest film of a white female, aged 35, with acute lymphatic leukemia, who shows extensive arborization and pseudo nodulation. There is no dust exposure.

Slide 16. This is the chest film of a 65 year old soft coal miner. He has the so-called "miners' asthma."

Certain infiltrations of the lungs may bear a remarkable resemblance to the nodulation of silicosis as miliary tuberculosis, carcinomatosis of the lungs, fungus infections of the lung, tuberculosis and chronic intrastitial pneumonia. Of these several condition slides illustrating two will be shown.

Slide 17. This is the chest film of a white female aged 32 with no industrial exposure. She died some three months later from miliary tuberculosis. The nodulation here is very similar to that of silicosis but we observe extension into the apices and the costophrenic angles.

Slide 18. This is an 18 year old white female with symptoms of four months duration. There has been no dust exposure. There is a bilateral advanced tuber-

culosis. In the lower half of each lung field, there are many nodulations marking a bronchogenic spread of tuberculosis.

CONCLUSION

1. Silica and certain fibrous silicates as asbestos are the only dusts known to produce interstitial fibrosis of the lungs.

2. The specific indication of the presence of silicosis is the characteristic nodulation on the roentgenogram. Without this finding, the diagnoses of silicosis is not sustained except by post-mortem examination.

234 Collinsville Ave.

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CHANGES IN GASTRO-INTESTINAL TRACT IN DEFICIENCY STATES

Thomas T. Mackie and Robert E. Pound, New York (*Journal A. M. A.*, Feb. 23, 1935), demonstrated roentgenologically changes in the small intestine in twenty-nine of thirty-seven cases of chronic ulcerative colitis and in three cases of tropical sprue. The changes are those which could be produced by edema of the mucous membrane, disorganization of the normal motor activity and reduction in tone of the intestinal musculature. They are constantly present and most marked in the cases showing advanced deficiency states. In the milder cases the parallelism is not exact. While the evidence does not warrant definite conclusions, the observations suggest that these changes in the small intestine are related to the deficiency states and perhaps play a part as a conditioning factor in their development.

Society Proceedings

COOK COUNTY CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday, March 6, 1935

Program Presented by the Faculty of the College of Medicine, University of Illinois, Chas. H. Plufer, presiding.

1. Spastic Paraplegias

A. Clinicopathologic Features—George B. Hassin.

Discussion—Roland P. MacKay.

B. Surgical Treatment—Eric Oldberg.

Discussion—Edmund Andrews; Percival Bailey.

2. Psychotic Symptoms and Their Significance—H. Douglas Singer; A. A. Low.

Discussion—R. T. Woodyatt; E. F. Foley.

COMBINED MEETING OF THE CHICAGO MEDICAL SOCIETY AND THE CHICAGO SOCIETY FOR THE STUDY OF RHEUMATIC DISEASES

Wednesday, March 20, 1935

Auditorium—Medical and Dental Arts Bldg., 185 North Wabash Avenue, Chas. H. Phifer, presiding.

PROGRAM—FOCAL INFECTIONS

The Present Concept of Focal Infection—I. Pilot; Joseph L. Miller.

Discussion: Ernest E. Irons, Eugene F. Traut, Emil G. Vrtiak, Edwin P. Jordan, Russell D. Herrold, David E. Markson.

The Value of Colloidal Gold in Inoperable Cancer—Edward H. Ochsner.

Regular Meeting, Wednesday, March 27, 1935

Auditorium—Medical and Dental Arts Bldg., 185 North Wabash Avenue.

Program Presented by Faculty of Northwestern University Medical School, Chas. H. Phifer, presiding.

"Studies of the Thyreotropic Pituitary Hormone"—Paul Starr.

Discussion—Hugo Roney, Emery Grimm.

"The Immediate Treatment of Injuries"—Michael L. Mason.

Discussion—Frederick W. Slobo, C. G. Shearon.

"The Blood Cyanates in Cyanate Therapy of Hypertension"—M. Herbert Barker.

Discussion—N. S. Davis III, Wm. Thomas.

"An Evaluation of the Relative Merits of Cholecystectomy vs. Cholecystostomy"—Marshall Davison.

Discussion—J. R. Buchbinder, R. W. McNealy.

Marriages

JOHN FRANCIS HAMMOND to Miss Louise Selergren, both of Chicago, February 24.

SAMUEL G. SEINFELD to Miss Charlotte Lois Strumpf, both of Chicago, February 10.

PAUL G. THODE, Chicago, to Miss Margaret Danielson of Evanston, Ill., March 5.

HARRY GOFF THOMPSON, Mount Vernon, Ill.,

to Miss Margaret Matthews of New Haven, Conn., Dec. 1, 1934.

Personals

Dr. Chauncey C. Maher, Chicago, addressed the Whiteside County Medical Society, February 28, in Sterling on hypertension.

At a meeting of the Vermilion County Medical Society, March 6, Dr. Arthur H. Parmelee, Oak Park, spoke on "Respiratory Diseases in Children."

Dr. Harold O. Jones, Chicago, discussed "Diagnosis and Treatment of Carcinoma of the Cervix and Uterine Endometrium" before the Peoria City Medical Society, March 5.

Doctor Max Thorek has been invited to address the Victoria Medical Society, the Vancouver Medical Association and Calgary Medical Society of Canada, on April 13, 14 and 16 respectively, on the subject of, "Electrosurgical Obliteration of the Gallbladder vs. Classical Cholecystectomy."

Dr. Glenn J. Tygett of Cape Girardeau, Missouri, addressed the Union County Medical Society on the "Diagnostic and Therapeutic Aids in Ophthalmology and Otolaryngology for the General Practitioner."

Letters and telegrams were sent by members of the Union County Medical Society to their Congressman at Washington, D. C., urging them to oppose all forms of legislation dealing with state medicine and health insurance. Numerous favorable replies were received from these Congressmen by the different members of the society.

Dr. E. J. Berkheiser spoke on "Fractures of the Ankle" at the meeting of the Lake County Medical Society, at Gary, Ind., on Thursday, March 14.

Dr. George W. Crile, Cleveland, discussed shock before the Englewood Branch of the Chicago Medical Society, March 5.

Among others, Dr. Owen H. Wangenstein, Minneapolis, addressed the Chicago Surgical Society, March 1, on "Practical Aspects of the Therapeutic Problems in Bowel Obstruction."

Speakers before the Chicago Council of Medical Women, March 1, were Drs. Ethel M. Davis, "Rheumatic Endocarditis in Children," and Alice K. Hall, "Popular Fallacies in Otolaryngology."

The DeWitt County Medical Society was addressed, February 25, by Dr. John A. Wolfer, Chicago, on "Problems in the Management of Gallbladder and Biliary Tract Disease."

Speakers before the Chicago Pathological Society, March 11, included Drs. Frank M. Cochems and Theophil P. Grauer on "Squamous Cell Carcinoma, Leukoplakia and Concretions in a Megalo-Ureter."

The Chicago Gynecological Society was addressed, March 14, by Drs. Edward H. Richardson, Baltimore, on "Abdominal Hysterectomy" and Noble Sproat Heaney on "Vaginal Hysterectomy."

The Chicago Ophthalmological Society was addressed, March 18, among others, by Dr. Leo L. Mayer and H. W. Magoun, Ph.D., on "Effects on the Pupillary Reaction of Lesions in the Posterior Commissure."

Speakers before the Warren County Medical Society, February 27, were Drs. George Karl Fenn and Guy M. Cushing, Chicago, on "Angina Pectoris" and "Acute Perforating Gastric and Duodenal Ulcers," respectively.

The Chicago Orthopedic Society was addressed, March 8, by Drs. Max Cutler on "Treatment of Bone Tumors" and Charles W. Peabody, Detroit, "Tendon Transplants Judged by Late Results."

At a meeting of the Chicago Urological Society, February 28, Drs. Tyrrell G. McDougal and Julius M. Glasser discussed "Conservative Treatment of Hydronephrosis" and "Calculi Formation Following Prostatectomy," respectively.

The Chicago Laryngological and Otological Society was addressed, March 4, by Dr. William F. Petersen on "Meteorological Factors in Otolaryngologic Practice."

Dr. Henry Kennon Dunham, Cincinnati, among others, addressed a joint meeting of the Chicago Roentgenological Society, Chicago Tuberculosis Society and the Chicago Tuberculosis Institute, March 14, on emphysema.

Dr. Ralph A. Reis addressed the Lancaster County Medical Association in Lincoln, Neb., on March 5. His title was "Some aspects of the conduct of normal labor."

Doctor Dorrin F. Rudnick addressed the Aurora Medical Society at the Copley Hospital, on March 14, 1935 on the subject of Pyelonephritis, etiology, diagnosis and treatment.

Speakers at the meeting of the North Side

Branch of the Chicago Medical Society, March 7, were Drs. Andrew C. Ivy and Anton J. Carlson on "Anterior Lobe of the Hypophysis—Function and Clinical Pathology" and "Physiology of the Ovaries" respectively.

Dr. Samuel L. Gabby, Elgin, discussed "Dermatitis Probably Due to Dyes" before the Chicago Society of Allergy," March 18 and a review of recent literature on urticaria was presented by Drs. Francis L. Foran, Tell Nelson, Samuel J. Taub, Leon Unger, William L. Beecher and Samuel M. Feinberg.

Dr. Leon Unger gave a talk on "The Recent Advances in the Field of Allergy" before the staff of Mercy Hospital, Urbana, on March 5, 1935.

Joseph K. Narat was invited to give a talk on "Cancer Research" for the Will-Grundy Medical Society, March 13.

News Notes

—About 1,400 persons attended a banquet in Chicago at the Palmer House, March 23, to honor the long services of Dr. Frederick Tice, clinical professor of medicine, Rush Medical College, to the Cook County Hospital and the Municipal Tuberculosis Sanatorium. Dr. Frank Jirka, state health commissioner, Springfield, was toastmaster. Addresses were made by many public officials and also Drs. William A. Pusey, Samuel R. Slaymaker, Allan J. Hruby and Morris Fishbein. Dr. Tice is also emeritus professor of medicine at the University of Illinois College of Medicine.

—The Chicago Board of Health has recently adopted rules and regulations for the production and control of vitamin D milk. Three processes for this purpose have been accepted, including ultraviolet irradiation, the addition of an approved vitamin D concentrate in a satisfactory manner, and the feeding of concentrated vitamin D substances to dairy cows under suitable conditions. A series of regulation application forms and other data have been developed to guide those who wish to apply to the board for permits to distribute such milk in the Chicago area.

—Dr. Ralph H. Kuhns, instructor in neuropsychiatry at the University of Illinois College of Medicine has been invited to present a paper

on the subject of "Fever Therapy for Dementia Paralytica at the annual meeting of the Miami Valley Hospital Society to be held May 3 in Dayton, Ohio.

—A new \$500,000 addition to the U. S. Marine Hospital, Chicago, was dedicated, February 18, with Surg. Gen. Hugh S. Cumming presiding at the ceremonies. The new wing, which contains 109 beds, increases the institution's capacity to 264 beds. The hospital was founded in 1873.

—William W. Cort, Ph.D., professor of helminthology, Johns Hopkins University School of Hygiene and Public Health, Baltimore, will deliver the Gehrman Lectures of the University of Illinois College of Medicine, April 8-10.

—H. 411 and S. 210 propose to impose on physicians, osteopaths, dentists, chiropractors, chiroprodists and optometrists an annual occupational tax equal to 3 per cent of their gross receipts from practice. H. 425, to amend the medical practice act, proposes to permit corporations to practice medicine.

—H. 319 proposes that no one shall be employed to teach in the common schools of the state who does not present a physician's certificate showing that the applicant is free from contagious, infectious or communicable diseases. H. 320, to amend the medical practice act, proposes to authorize the revocation of the license of any practitioner who knowingly issues "a false certificate to any person to aid such person to obtain an appointment as a teacher in the schools of the state and showing such person to be free from contagious, infectious and communicable diseases."

—Heart disease accounted for 21,034 deaths in the total of 87,195 in Illinois for 1934, according to the state health department. A general mortality rate of 11.1 per thousand was noted for the year, a figure slightly higher than the average since 1929 but substantially lower than that for any previous year on record. The report stated that although the birth rate, 14 per thousand of population, was slightly higher last year than in 1933, the rise in mortality offset the gain, leaving an excess of only 23,000 births over deaths the lowest on record. The maternal mortality rate (4.8 per thousand births) was the lowest on record, but the infant death rate of 53.2 per thousand births was noticeably higher than for 1933. A new low level was reached for mortality from

tuberculosis, 4,102 deaths giving a rate of 52 per hundred thousand of population. There were sharp advances in mortality from infantile diarrhea and pneumonia. Second to heart disease was cancer, accounting for 9,638 deaths; nephritis, 8,156; accidents, 6,919; cerebral hemorrhage, 5,600; pneumonia, 5,901 and tuberculosis, 4,102. These seven causes accounted for substantially more than half of all mortality last year, and all but tuberculosis and cerebral hemorrhage were responsible for marked increases.

Deaths

MICHAEL EARL BRENNAN, East St. Louis, Ill.; St. Louis University School of Medicine, 1921; a Fellow A. M. A.; past president of St. Clair County Medical Society; for sixteen years bacteriologist for the city health department; aged 40; on the staff of St. Mary's Hospital, where he died, January 31, of carcinoma of the larynx.

HILLES TALLEY BROWN, Dixon, Ill.; Northwestern University Medical School, Chicago, 1922; also a dentist; formerly demonstrator in anatomy at the Northwestern University Dental School; on the staff of the Dixon State Hospital; aged 71; died, February 19, in the Veterans' Administration Hospital, Milwaukee, of bronchopneumonia and coronary sclerosis.

JAMES N. DOWNS, Atkinson, Ill.; Homeopathic Hospital College, Cleveland, 1880; member of the Illinois State Medical Society; aged 80; died, February 3, of coronary occlusion.

ROBERT M. FUNKHOUSER, Fairfield, Ill. (licensed in Illinois in 1879); aged 84; died, February 1, of arteriosclerosis.

VINCENT GIALLORETI, Chicago; Regia Università di Napoli Facoltà di Medicina e Chirurgia, Italy, 1892; aged 69; died, March 6, of cerebral hemorrhage.

ESTHER CONCORDIA JOHNSON, Moline, Ill.; University of Illinois College of Medicine, Chicago, 1931; also a medical missionary; aged 35; died, January 22, of malaria.

ARCHIBALD CECIL KANE, Oak Park, Ill.; Queen's University Faculty of Medicine, Kingston, Ont., Canada, 1920; member of the Illinois State Medical Society; instructor in laryngology, otology and rhinology, University of Illinois College of Medicine, Chicago; served with the British Army during the World War; consulting surgeon to the Municipal Contagious Disease Hospital, Chicago, and formerly on the staff of the Illinois Eye and Ear Infirmary, Chicago; aged 42; died, February 10, of coronary thrombosis.

WILLIAM BERINGER MARCUSON, Oak Park, Ill.; Rush Medical College, Chicago, 1885; aged 74; died, February 17, of cerebral arteriosclerosis, thrombosis and pneumonia.

FRANKLIN H. MARTIN, Chicago; Northwestern Uni-

versity Medical School, Chicago, 1880; a Fellow A. M. A.; who founded and edited *Surgery, Gynecology and Obstetrics*; organized the Clinical Congress of Surgeons of North America in 1910, and American College of Surgeons in 1913; founded the Gorgas Memorial Institute of Tropical and Preventive Medicine; chairman of the general medical board of the Council of National Defense during the World War; president of the American College of Surgeons in 1929; and director general from 1913 till his death, aged 77, in Phoenix, Ariz., March 7, 1935.

Dr. Martin was the recipient of numerous honors, including the U. S. Distinguished Service Medal, and orders from King George of England and the Crown of Italy.

BERNARD MILLER, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1900; aged 58; died, February 13, of angina pectoris and chronic myocarditis.

HENRY EDWARD SAUER, Miami, Fla.; Northwestern University Medical School, 1896; at one time instructor in gynecology at his alma mater; for many years on the staff of the Grant Hospital, Chicago; aged 66; died, Dec. 10, 1934.

WILLIAM T. SHORT, Stonington, Ill.; Marion-Sims College of Medicine, St. Louis, 1897; member of the Illinois State Medical Society; formerly district health superintendent of the state department of health; aged 62; died, February 10, of acute dilatation of the heart.

NOBLE VAN ZANT, Momence, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; on the staff of St. Mary's Hospital, Kankakee; aged 52; died, January 17, of coronary occlusion.

CHARLES F. W. WILHELMJ, East St. Louis, Ill.; St. Louis Medical College, 1880; a Fellow, A. M. A.; past president and secretary of St. Clair County Medical Society; fellow of the American College of Surgeons; formerly health officer of East St. Louis; at various times chief of staff of the Christian Welare Hospital and St. Mary's Hospital; aged 76; died, January 28, of cerebral hemorrhage.

OTHO BOYD WILL, Peoria, Ill.; Rush Medical College, Chicago, 1869; member of the House of Delegates of the American Medical Association in 1902 and in 1906; member and past president of the Illinois State Medical Society; one of the founders and on the staff of the Proctor Hospital; aged 88; died, January 28, of chronic nephritis and cerebral arteriosclerosis.

LAWRENCE EDWARD ZULEY, Oak Park, Ill.; Loyola University School of Medicine, Chicago, 1932; a Fellow, A. M. A.; on the staffs of the West Suburban Hospital and the Oak Park Hospital; aged 28; died, February 14, of appendicitis, general peritonitis and pneumonia.

ALBERT SAMUEL ZWICK, Chicago; Cleveland College of Physicians and Surgeons, Medical Department Ohio Wesleyan University, 1912; a Fellow, A. M. A.; aged 45; died, January 27, in Miami, Fla., of pulmonary edema.

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F. P. A. in the New York Herald Tribune

When the proofroom thought that we meant sacro-lilac instead of sacro-iliac in speaking of Mrs. Moody's back, we were indignant. But the proofroom is far more literate than we are; it seems obvious now that they were thinking of "When Lilacs Last in the Door-Yard Bloom'd," the second stanza of which prophetically begins:



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*History of Medicine, F. H. Garrison, (W. B. Saunders Company) 1929, p. 346.



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CONTENTS:

Editorials (For Titles See Extended Table of Contents) 389

ORIGINAL ARTICLES

Malignant Tertian Malaria. *Harry J. Ireland, M. D., and Milton G. Bohrod, M. D., Peoria, Ill.* 445

Pyelocystitis. *Clarence C. Saethof, M. D., Chicago* 450

Extensive Resections of Small Intestine. *Paul W. Greeley, M. D., Winnetka, Ill., and Paul E. N. Greeley, M. D., Waterman, Ill.* 451

Hallux Valgus (Bunions). *Philip H. Kreuscher, M. D., and H. Kelikian, M. D., Chicago* 453

Value of Blood Findings re Acidosis in Diabetes. *R. M. Parrott, M. D., Oak Park, Ill.* 457

Dosage of Histamine for Stomach Tests. *E. E. Seidmon, M. D., and H. Necheles, M. D., Chicago* 458

Case of Congenital Absence of Uterus and Vagina. *Harry O. Veach, M. D., Kewanee, Ill.* 459

Renal Dwarfism. *Leo Frederick Miller, M. D., and George Charles Coe, M. D., Chicago* 459

Modern Advancements in Serology. *Harry Phillips, M. D., Anna, Ill.* 461

Treatment of Carbuncles. *Everett B. Williams, M. D., Chicago* 467

Treatment for Vaginal Trichomoniasis. *Oscar W. Tulisalo, M. D., Rockford, Ill.* 467

(Continued on Page 8)

Eighty-Fifth Annual Meeting at Rockford, May 21, 22, 23, 1935

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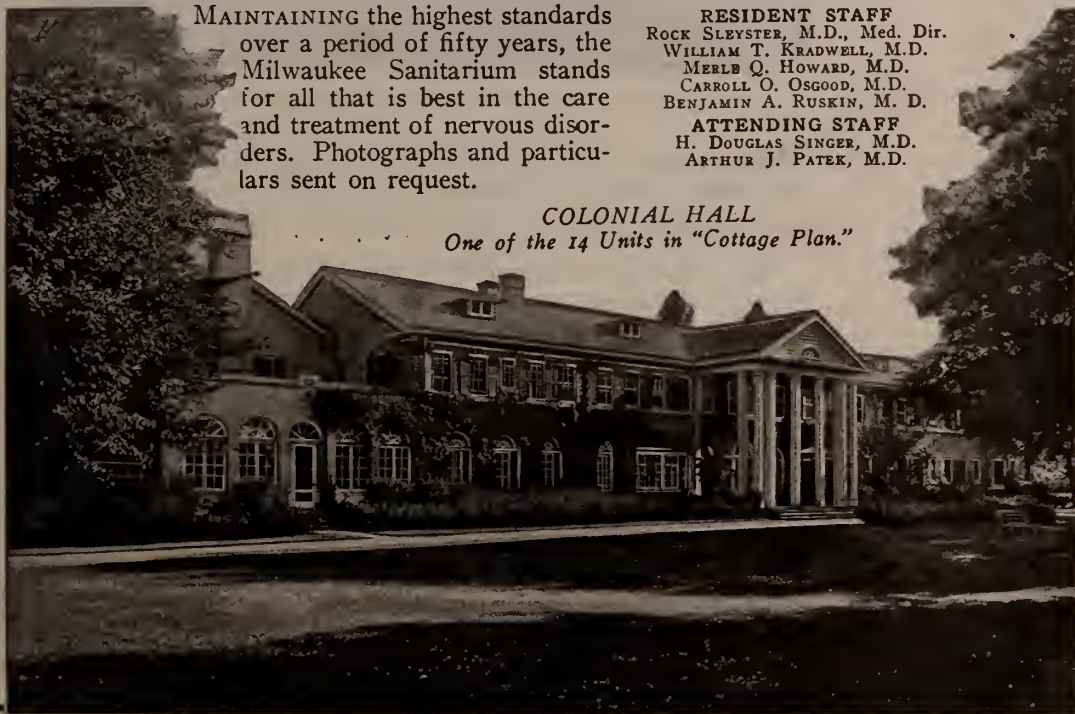
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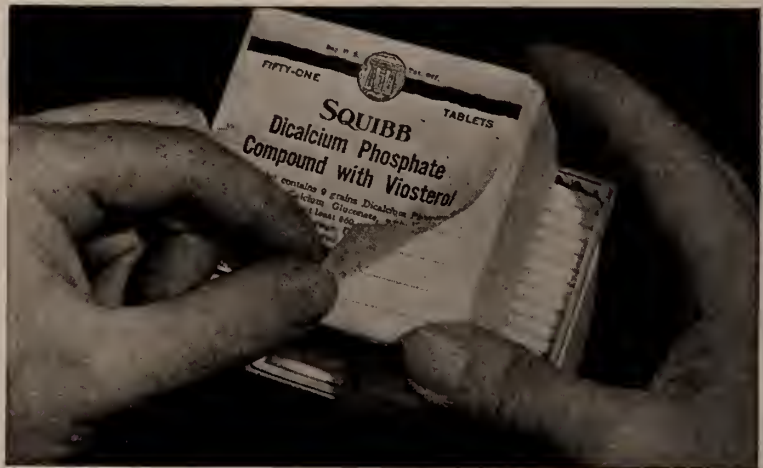
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Editorials

SENATOR BORAH DECRIES BUREAUCRATIC PERIL

April 20 in Washington before the American Society of Newspaper Editors Senator Borah scathingly denounced bureaucracy. He said in part:

"It is one of the strange freaks of human nature and one of the tragedies of government that many men, who through the accidents of politics secure office, immediately become possessed with the idea that they are the sole custodians of American principles, the sole guardians of American institutions, and the exclusive possessors of American ideals," he continued.

"Hence they immediately begin to enact laws upon the theory that the people generally are weak, susceptible, dangerous, prone to think for themselves, and sure if they do—think unwisely. The fact is that the real guardians of American democracy and American ideals are these same people whom the lawmakers seem constantly to distrust."

Senator Borah forecast a fierce fight for readjustment of our economic system under American principles. In this fight, he declared, the legislators should keep their hands off freedom of speech and the press. To what extent and in what respect the readjustment is to take place, no one knows, he said.

WARNS AGAINST SACRIFICE

"But the great and vital things in life ought not to be sacrificed. To sacrifice such things does not speed recovery. To kill initiative, to undermine self-reliance, to discourage self-help, to destroy liberty, to lose confidence in the judgment and stability and patriotism of our own people, does not help recovery."

Senator Borah said he was not alarmed by things threatened by the open enemies of constitutional government, but by the things done by the friends, or supposed friends, of constitutional government. The communist, bawling on a street corner, he added, is not to be compared

as a problem with the impatient lawmakers or administrators, who feel justified in disregarding constitutional principles in the interest of efficiency.

"The practice which has grown up of authorizing departments to make rules and regulations, the violation of which constitutes a crime, is one of the most objectionable practices with which the citizen has to contend," he continued.

TYRANNY IN GOVERNMENT

"There is scarcely any scheme imaginable more calculated to instill fear and confusion in the mind of the ordinary person and to finally undermine all freedom of action than to subject him to countless rules and regulations by numberless departments or bureaus, the violations of which burden his property or restrains him of his liberty. It is a species of tyranny that is foreign to every concept of constitutional government."

Senator Borah concluded that there are two powerful agencies by which the country may be saved from "schemes born of egotism in office"—freedom of speech and freedom of the press.

FORMER SECRETARY OF STATE BAINBRIDGE COLBY DENOUNCES TYRANNOUS AND BUREAUCRATIC RULE

Bainbridge Colby, Secretary of State under President Wilson, in a talk before the American Newspaper Publishers' Association, New York, April 25, according to the Associated Press Service, said of our growing bureaucracy:

"The Democratic party was charged with making the nation a socialistic state and enveloping it in a mesh of tyrannous and bureaucratic rule."

The former secretary of state said that freedom of the press, often stressed at the convention, was not the only thing imperiled.

Proposed legislation, he said, would reduce the farmer to "the level of a serf," with the secretary of agriculture controlling every step from "sowing to consumption." He asserted the "bureaucrats" would be given power to make regulations and punish violators without going to court.

SCATHES PRESENT "INNOVATORS"

"As a Democrat," Colby continued, "I would venture to remind the heady and nonchalant innovators of the moment who are officiating as instruments of the Democratic party, and usurp-

ing its name, that the government of the United States was established to get rid of arbitrary, discretionary executive power."

Saying the present administration has no counterpart save "the autocratic sway of unresisted dictatorship," he asserted:

"The Democratic party cannot, nor will it, turn from legal regulation to executive regulation, from law to personal power without rending itself in twain and divorcing from its ranks countless thousands."

FOOLISH TO ALTER SOCIAL FORMS

He held "it is the counsel of fools or enemies of the United States that we should alter the fundamental form of our society in order to solve economic problems which would be easy of solution if we would but cease our effort to abort and throttle established economic law."

He concluded with the statement that the people "begin to see they are on the wrong track."

And this from Dr. Glenn Frank, president of the University of Wisconsin, who told the publishers the United States still is in the shadow of the dictatorship threat.

"Less than at any time in human history," said Dr. Frank, "can we afford to bully into silence the voice of corrective criticism, intimidate minority opinion and give unquestioned right of way to the green dogmatisms of politics and economics that sprout so lavishly from the improvisings of crisis-driven statesmen."

BUREAUCRACY THROUGH LIBERAL FEDERAL GRANTS IS SAPPING THE VITALITY OF STATES AND BREAKING DOWN THEIR MORAL AND POLITICAL INDEPENDENCE

For upwards of two decades the Editor of the JOURNAL has fought the growing menace of bureaucracy in medical as well as in public affairs. Overcentralization of power in Washington, we have repeatedly said, will stifle, if not completely destroy, medical as well as industrial progress. There is too much regimentation of national enterprise; it all means the ultimate destruction of the true American pioneering spirit which has gone into the making of this nation.

Because of so much regimentation the states

are becoming mere geographical units, since they are being shorn of their rights and functions, receiving federal subsidies in return for their surrender and accepting standards not always suited to their local conditions. Yet, strangely enough, the states have preserved a profound silence with respect to the new menace. No protest has come from any of them. No petition has been addressed to Congress praying it not to encroach upon the sovereign rights of the states.

The truth is that the states are apathetic. Proffers of liberal federal grants are sapping their vitality and breaking down their moral and political independence. They have fallen into a sleeping sickness.

**THERE IS NO LIMIT IN SIGHT
EITHER FOR A POLITICO-MEDICO
BUREAUCRACY, OR ITS COST
TO THE TAXPAYERS!**

That fabled bean-stalk of Jack-the-Giant-Killer boasted a growth no more phenomenal than the bureaucratic political oak, rooted in Washington and spreading its branches like wild-fire into the homes of the nation and the depleted purses of taxpayers. For this giant nightmare is even overtopping the prerogatives of the United States Supreme Court!

Nurtured by "Federal Aid Schemes" and rapscallion subsidies of a thousand varieties and armored with the slogan of "non-partisan politics," the clique of Federal, State and other political employes with salaries paid by the taxpayers are speedily developing into a bureaucracy with paricidal intent and tyrannical power. From employes of the nation this group has mutated into the nation's overlords.

Another Soviet could ask for no better nucleus than this. In order to increase their own salaries, to hold down their own jobs and to augment their own power, this group of false patriots labors only to undermine its country; to bleed the taxpayer who works for his money and earns it by the sweat of his brow rather than by playing cat's-cradle with reels of bureaucratic red tape; and "plays politics" with fewer scruples and more acumen than do either of the "old line parties" or any of the fresher upshoots of "citizens with a cause." Temporary power is, after

all, the aim of the old line parties. Nothing else has ever been thought of by them since the days when the anti-third term became a presidential tradition. But permanent power, for a bureaucratic clique that will maintain its job and its despotism while political parties and eventually the government itself, rise or fall, is the aim and the ambition of these reptilian-souled political adventurers.

"Individual liberty, local self-government, and party responsibility for legislation" have long been conceded to be the foundation stones upon which the greatest democracy of all times has flourished, flourishes and will flourish.

Neither individual liberty, local self-government, nor party responsibility can ever be cooped up in a half dozen or more great architectural expressions in the national capital. But behold how the near-sovietism of the employes of the central bureaucracy that long since cast aside its swaddling clothes functions from Washington with renewed vitality as each fresh instance of further plans in the radical program—the measures carrying unlimited Federal "bureaus" and their appurtenances, including stupendous taxation, here, there and everywhere, are put into effect. We have now an unending field day for the bureaucrats. Patriotism is being devoured, if not digested, by the swelling taxing levies.

The Declaration of Independence was a human protest, written in blood and signed in martyrdom, as a protest against the "swarms of officers," and the "multitude of new offices," and the pounds of fresh taxes, imposed upon the colonies by a shortsighted British king. If George III were alive today, he would howl with glee at what has happened to his rebel colony, not from outside influences—but from the selfish-hearted within its own limits. When it comes to tax levys for nincompoopation, George III would have to admit that he hadn't known the first thing about it.

This bureaucracy, that might be termed a union of some 5,000,000 Federal employes, has grown faster than any other known similar octopus of human misjudgment. It is more than a bureaucracy—it is a caste—a caste of untouchables lifted to the heights. There is more political power in this banded bureaucracy than in all the rest of the United States government put together. This group can bring pressure and it

does—not for patriotism but for their own selfish ends. This caste comprises all of the shrewdest alumni from the communistic “social welfare centers” and other bombasts of that ilk, who pick off one cherry for the dear public and some dozen or so for their own personal usage.

Cherries ripening now for this group, and titillating the bureaucratic palate, hang on the trees of centralized control of the practice of medicine—ah, there will be the juiciest one!—of compulsory health insurance; education; child labor; marriage and divorce; minimum wage legislation; employment of women; maternity and infancy; so-called “public welfare”; and all the rest of the meaching rackets. Budget Bureau Estimates and Executive Orders are as chaff before the wind in the face of what this bureaucracy wishes to do—and does do. Legislation and Constitutional amendments now pending will give the bureaucracy the open door to perfect and permanent control of every action and every penny in the United States, unless that legislation is killed. For the plan now is for this clique and their works to be placed so definitely and so securely within the actual vitals of American democracy and so protected there that even the Supreme Court of the United States will have no control over anything that this clique may do!

Could democracy suffer a more contemptuous gesture? With the radical program as outlined, bent upon increasing centralization of power and many times multiplying present taxation, and setting up in Washington this despotic mechanism of bureaucrats who stand intact *no matter what the results of national or local elections*, this clique of political jobbists, unlimited in scope of power, will be the final pivot to transmute the great American democracy into a pitiable imitation of U. S. S. R.

The only bright side of the picture is that this crowd of schemers must live by taxes. At the rate we are going taxes will even beat death in the scheme of mortal existence. These amendments and this legislation now under consideration must be destroyed. The bureaucrats, if they are wise in the ways of prophecy, might stop and ask of themselves what they are going to do when they reach the point described best by the well known phrase: “That’s all—there isn’t any more.”

THE MEDICAL PERSONNEL OF THE UNITED STATES MEDICAL SERVICE, A CORPORATION PRACTICING MEDICINE ENGAGE IN FISTICUFFS. DR. BERKOWITZ GETS A BLACK EYE

This highly interesting article about the much publicized Dr. Joseph Berkowitz, quondam head of the United Medical Service of Chicago, a corporation practicing medicine at cut rates, is reprinted from the *Chicago American* of April 10. How unfortunate that this cyanosed optic is on Berkowitz instead of his institution! What wormwood in the thought that it was caused by one of Joe’s own flock rather than by one of those ethical, organized medical societies of which Joe is always complaining.

Perish the thought that Brother Zeisler may have thought, “One black eye deserves another.”

BERKOWITZ EYE BLACK; CLINIC SEES RED

“A beautifully blackened right eye owned by Dr. Joseph Berkowitz, \$1,000-a-month president of the United Medical Service, Inc., was revealed today as one development in the current turmoil at that institution.

“Dr. Berkowitz, who owns a major interest in the organization at 23 E. Jackson blvd., was given the colored optic Saturday night as a token of affection from Dr. Ernest B. Zeisler, late chief of the medical staff, it was revealed today.

“As a direct result of the ‘conference’ during which the president received his little gift, a terse announcement was issued that Dr. Zeisler had been discharged.

“And as a result, in turn, of this pronouncement as well as a climax to sundry other grievances, thirty members of United’s medical staff today were on the verge of resigning in a body.

A DEEP, DARK SECRET

“All this was learned exclusively by the *Chicago American*, though every effort was made by Dr. Berkowitz to shroud his ‘testimonial award’ in secrecy as dark as the eye itself.

“It was learned, too, that the injured eye required three stitches, which were administered by Dr. Louis K. Schmidt, noted urologist recently expelled from the Chicago Medical

Society because of his work for low priced clinics.

"Dr. Schmidt announced, meanwhile, his concurrence with the attitude of Dr. Charles R. Wiley, vice president and director, and the other incipient strikers, that things are not as they should be under Dr. Berkowitz' regime.

"The staff as a whole believes United should be operated 'not for profit.' They also believe it is unfair for the president to pay himself \$1,000 a month, and proportionately high salaries to others of his family, while the ordinary run of staff physicians is getting as low as \$125 a month.

EXTENDS TO NURSES

"Moreover, they ask, why should nurses be paid as low as \$40 to \$50 a month in an organization founded not to make money for its operators, but to save money for unfortunate patients?"

"Dr. Wiley wanted it clear that the doctors are not yet striking, and intend to care for all present patients. But they won't accept additional cases until or unless a reorganization is effected.

"Recently the clinic lost a test case in which the right of a corporation to practice medicine was the issue.

"Judge Michael L. McKinley held the clinic has no such legal right. An appeal is pending in the Supreme Court.

"Meanwhile Dr. Berkowitz is ministering to his wounded eye in seclusion."

ACT TWO OF DR. BERKOWITZ' DRAMA

April 26th before Federal Judge Wilkinson came Dr. Berkowitz with a claim stating that he had been slugged in a fight with his partners and asked for and received a temporary restraining order against seven defendants, four of them officials of the United Medical Service, Inc., 23 East Jackson boulevard, from interfering with the operation of that organization by Dr. Joseph G. Berkowitz, president.

The defendants in the case are Dr. Louis E. Schmidt, widely known physician, who is a leader in the fight for low cost medical care; Dr. Ernest B. Zeisler, Dr. Charles R. Wiley, Clifford M. Templeton, and Hamilton M. Loeb, directors of the United Medical Service; Dr.

Meyer J. Steinberg, member of the staff, and Jacob M. Loeb, father of the director.

CHARGES BEATING AT MEETING

The suit climaxed a fight of weeks among the defendants and Dr. Berkowitz over the future and policies of the United Medical Service, which was organized as a low cost medical center.

The attack on Dr. Berkowitz came after the defendants had tried to induce Dr. Berkowitz to turn the stock into a voting trust in order that the members of the staff and other employees might share in the profits, according to the suit.

The suit charged that the defendants had conspired to take control of the service and oust Dr. Berkowitz. The bill also charged that the defendants had tried to induce employees to quit and had made scurrilous remarks about Dr. Berkowitz. They also conspired to injure the credit of the organization and to interfere with the stockholders, according to the suit.

THE FAUST HOTEL

Make Your Reservations Early

The Faust Hotel at Rockford has been selected for headquarters for the 1935 Annual Meeting. This hotel will house all sessions, both section meetings and general sessions, and also will have displayed within it all exhibits, motion picture demonstrations, etc.

The Faust Hotel is the largest hotel in Illinois outside of Chicago, and has ample accommodations for 900 guests. The Manager, Zach Jenkins, has assured us that the entire building and his capable personnel are ours for the meeting. Members who have not already done so, should make their reservations by either writing Mr. Jenkins direct, or through the hotel committee, at Rockford.

Outside of the city of Chicago, it has been difficult to arrange for all meetings and exhibit space under one roof, but we believe the Illinois State Medical Society has never had better facilities offered for any meeting, than for the Eighty-Fifth Annual Meeting.

Although there is ample room for all in the Faust Hotel, it is advisable for all who contemplate attending the annual meeting to make their

reservations before going to Rockford, so there will be no last moment confusion.

We'll meet you at the Faust Hotel.

ROCKFORD

On a Spring evening in the year 1834, two white men, Germanicus Kent and Thatcher Blake beached their canoe near the mouth of a small creek emptying into the Rock River. Being considerably impressed with the possibilities of the site, they returned in the Fall of that year and established the first homes in what is now the city of Rockford. From this humble beginning of two adventurous explorers, its population has steadily grown to approximately 100,000 people—the third largest city in the State of Illinois.

The steady growth of Rockford has been due in a large measure to the unusually favorable manufacturing facilities which have been constantly available through the use of the Rock River as a source of power. Rockford enjoys a world wide reputation as a premier producer of fine furniture, machinery, machine tools, knitted wear, knitting machines and hundreds of similar products.

In Rockford is located one of the most outstanding colleges for women. Established in 1849, Rockford College occupies a beautiful site overlooking the Rock River and its student body includes young women from all over the United States.

Rockford is proud of its public school system consisting of one Senior High School, two Junior High Schools and 20 Grade Schools. There are also the parochial schools, consisting of one Boys' High School, one Girls' High School and seven graded schools.

In Rockford you will find eighty churches of all denominations and Catholic Pro-Cathedral.

As a Convention and Visitors' City, Rockford offers facilities and features equal to any in the entire State of Illinois outside of Chicago. Its department stores provide shoppers with complete selections of all that is new in clothing and other types of merchandise.

In Rockford is located Hotel Faust, recognized as one of the outstanding convention and transient hotels in the entire Middle West. Up-to-date restaurants, cafeterias, taverns, theatres and night clubs offer food and relaxation when the day's work is done.

THE OFFICIAL PROGRAM

The official program for the eighty-fifth annual meeting of the Illinois State Medical Society appears in this number of *The JOURNAL*. All members of the society who will carefully look over the program, and note the many special features which have been arranged for this meeting, should arrange now to be on hand when the meeting opens.

Rockford has many hard roads leading into it, from all parts of the state. Direct roads from Chicago, the Tri-Cities, Springfield, Peoria, Bloomington, and from other parts of the state make it relatively easy to drive to Rockford.

Owing to the fact that round trip tickets on the railroad can be purchased at a reduced rate over the one way ticket, and because at recent meetings of this society it has been impossible to procure a sufficient number of convention certificates to get the special return rate, no effort is being made this year to procure a special reduced rate for the meeting.

There is but little difference between the special convention rate and the present round trip fare, and when a convention rate is asked for on a basis of 150 convention certificates to be validated, it means that if this number is not procured, the return rate is not reduced, and the round trip fare much higher than when the regular round trip ticket is purchased.

The Committee on Arrangements, the Winnebago County Medical Society, the Rockford Association of Commerce, the city officials and residents of the city of Rockford as a whole, extend a courteous invitation to the members of the Illinois State Medical Society to attend the 1935 annual meeting.

An interesting array of entertainment has been arranged for the ladies, so bring the ladies with you, for their well deserved vacation. The Woman's Auxiliary program appears in the official program, and it will be of interest to the lady members of the Doctor's family.

Elsewhere in this *JOURNAL* appears the official invitations from the Rockford Society, and Committee on Arrangements. The annual meeting is the members own meeting, and each member of the Illinois State Medical Society should endeavor to be present on May 21.

MARK THE 1935 ANNUAL MEETING
ON YOUR CALENDAR.

NOTES ON THE 1935 ANNUAL MEETING

We wish to call to the attention of the members of the Illinois State Medical Society, some of the special features of the 1935 annual meeting to be held in Rockford. All meetings will be held in the Faust Hotel.

The Secretaries' Conference will be held at 9:00 A. M., Tuesday, May 21, and a program of general interest to all members of the Society has been arranged. It is hoped that an unusually large attendance will be present for the Conference.

The special meeting of the Pediatricians' will also be held on Tuesday morning, and this group has arranged a program of general interest to all physicians who are interested in the care and welfare of infants and children.

The special Committee on Scientific Exhibits has arranged the best exhibit of this nature that has ever been shown at an annual meeting of this society. As previously announced, special prizes for the best exhibit of all classes, and for the best in each of the three classes will be awarded by the committee during the meeting. A complete list of these exhibits appears in the general program published in this issue of the *ILLINOIS MEDICAL JOURNAL*.

The Fracture Demonstrations which proved so popular at the 1934 Annual Meeting in Springfield, have likewise been arranged for the 1935 Annual Meeting. Under the general supervision of Dr. Philip H. Kreuscher, a list of men interested in fracture treatment, have been selected to conduct these demonstrations throughout the meeting.

Another new and highly interesting feature which has been arranged for the meeting, is the motion picture exhibit. A number of interesting films are scheduled for showing on each of the three days of the meeting, and the complete listing is shown in the official program.

The Veterans' Dinner meeting to be held on Tuesday evening, May 21, at the Faust Hotel, will be one of the high spots of the meeting. On the program we find the Department Surgeon, of the Illinois Department of the American Legion, the Commander of the Department of Illinois American Legion, and the Chairman of the American Medical Association Committee on Veteran's Affairs. This unusual group of speakers on one program should be of general interest

to both medical veterans, and all other physicians at the meeting.

The official program shows that there will be two joint sessions on Tuesday afternoon,—the Sections on Medicine and Public Health and Hygiene, and the Sections on Surgery and Radiology joining for the two sessions. On Thursday morning, four of the scientific sections will unite for one of the best programs of the meeting.

The first meeting of the House of Delegates will be held on Tuesday afternoon, May 21, at 3:00 o'clock, and the second meeting will be held at 8:30 A. M., Thursday, May 23. It is important that every component county medical society in Illinois be represented at these meetings.

The President's Dinner on Wednesday evening, May 22, should be attended by all members of the society present at the meeting. This evening is set aside to honor our outstanding President, Dr. Chas. S. Skaggs, and it is fitting on this occasion to show our President the appreciation of the entire society for his efforts throughout the year.

All sessions, general and sections; all exhibits, both commercial and scientific, and all demonstrations and special meetings appearing in the official program, will be held under one roof, the Faust Hotel. We have been repeatedly assured by the management of this fine institution that all facilities of the Hotel are available to the Illinois State Medical Society throughout the meeting. Those who have not yet made their hotel reservation, should do so before going to the meeting.

ALL ROADS WILL LEAD TO ROCKFORD, on May 21, 22, 23, 1935.

NEW YORK ATTORNEY GENERAL SUES TO CLOSE LIFE EXTENSION INSTITUTE

The Life Extension Institute of New York, a corporation practicing medicine through the medium of a third party is under fire by the Attorney General.

The following news item will be of interest to the doctors of Illinois who have recently won a suit against a corporation practicing medicine in this sovereign state.

New York, April 9.—[Special.]—A suit to halt activities of the Life Extension Institute, Inc., and eventually put it out of existence on the charge that it engaged in the practice of

medicine without license has been started by Attorney General John J. Bennett, Jr.

The attorney general asks that the charter be forfeited, the corporation be dissolved, a receiver appointed, and an injunction be issued restraining the institute.

Bennett asserted that the institute had grown from a capitalization of \$4,000, when it was incorporated in December, 1913, to two million dollars, with 26,000 shares outstanding.

Papers in the suit show that among the original directors of the institute in 1913 were William Howard Taft, then of New Haven; Frank A. Vanderlip, and Charles H. Sabin, 140 Broadway.

Note: The Principles of Medical Ethics now contains the following statement:

"It is unprofessional for a physician to dispose of his professional attainments or services to any lay body, organization, group or individual, by whatever name called, or however organized, under terms or conditions which permit a direct profit from the fees, salary or compensation received to accrue to the lay body or individual employing him. Such a procedure is beneath the dignity of professional practice, is unfair competition with the profession at large, is harmful alike to the profession of medicine and the welfare of the people, and is against sound public policy."

"Regardless of the damage wrought to scientific medicine by physicians who engage in contract practice or by groups of physicians competing with the individual practitioner, the worst possible type of new methods in medical practice is the incorporation by business men of organizations to engage in the practice of medicine, employing physicians on salaries and exploiting the services of these physicians unethically to the public. The most conspicuous example of such an organization is the United Medical Service, Inc., which began two years ago to advertise its services to the people of Chicago.

UNITED STATES SUPREME COURT UPHOLDS BAN ON DENTIST ADVERTISING

Washington, D. C., April 4.—The U. S. Supreme Court has ruled that the Oregon law prohibiting dentists from advertising is constitutional.

The opinion, delivered by Chief Justice

Hughes, stated that the Oregon law is not an arbitrary interference with liberty and property, and added that the public should be protected against practices which "tend to demoralize the profession." No dissent was made to the opinion.

The case concerned Harry Semler, a Portland dentist, who contended that the 1933 act does not operate for the welfare of the general public, but for the financial benefit of a part of the dental profession, at the expense of the public.

CHRISTIAN SCIENCE MONITOR TAKES UP THE CUDGELS FOR MEDICINE

When those foes-by-dogma-and-tenet of ethical medicine, the Church of Christ, Scientist, in its official organ, the *Christian Science Monitor*, takes up the cudgels for medicine in its present, bitter economic fight, then indeed, brothers, is it time to sit down for some long, long thoughts! When our natural opponents, the Christian Scientists, get around to the point of looking at the medical profession of America and crooning,

"My, my, what will poor robin do then?"

It is just about an instance of immediate expediency for a few of us to take our heads out from under our wings, poor things, and survey the terrain around from horizon to horizon.

If Mrs. Eddy's disciples are literally passing the editorial hat in behalf of organized medicine, truly we are a house afire and know it not.

In part *The Monitor* says of the economic situation which physicians face:

"Medical Peonage."

"The family physician who brought kindness, ready sympathy and unselfish service in large quantities along with his pills and potions has been passing from the American scene; more and more his place has been taken by a complex mechanism, a highly departmentalized professionalism, with impersonal efficiency its dominating sentiment. Now there is a tentative plan for a broad organization of 'state medicine,' as recently outlined by the secretary of the Milbank Memorial Fund of New York. This plan, utterly impersonal, purposes that the entire American population—including that 62 per cent. which the fund's spokesman says receive no medical, dental or eye care of any kind—shall be coerced into supporting financially and yielding physic-

ally to the domination of a group of state-employed medical men.

"It is difficult to understand why every citizen—including those who by choice would adhere to a rival school, to no school, or who depend upon prayer for healing—should be compelled to comply with such a regulation. Incidentally, it is strangely foreign to the legend of the family doctor, who worked under the motto, 'To each according to his need; from each according to his means.'

"Yet it is just this point which the Milbank fund stresses as its reason for proposing compulsory state medicine. The complexities of modern medical practice, it is claimed, have elevated its cost above the means of many who wish it. Therefore, what could be simpler than for everyone to contribute his proportionate share of the total cost of medical aid, thus minimizing the per capita cost according to the well-known practice of insurance?

"If those who feel they wish material aid in their illnesses were left free to enter or refrain from participation in such a scheme, no criticism could be leveled at it. But, in order to make the plan thoroughly effective, says the fund's secretary, it must be made compulsory upon all. But will that 62 per cent. of the people who have not felt the need of medicine sufficiently to seek its aid—although it is offered without cost in countless hospitals and clinics—permit themselves to be saddled with medical peonage?"

WHEN YOU GRASP THE COOPERATIVE SPIRIT THEN YOU WILL BE A WORTHY MEMBER OF THE MEDICAL PROFESSION

1. Are you more concerned in your own *personal privileges* than you are in your *brother practitioners*?

2. How often do you *attend the meetings* of your Medical Society? What for?

3. Do you assume that the Medical Society will extend to you the benefits of the Association *without any effort* on your part?

4. Do you realize how much *you can do* to assist your brother practitioners in fighting the menaces confronting the profession?

5. If you do realize it, have you *done your part* in helping to combat the evils?

Every physician has an inalienable partnership in his medical association; the prosperity of the organization rests with each individual.

It is essential to alert membership that every individual has an understanding of the needs of the association and a loyalty to carry out its policy, and that you give the keenest co-operation to your fellow members and the officers of the organization.

When you grasp this spirit then will you be a worthy member of the medical profession and will become a contributor to the force that is necessary to make the organization serve the end for which it was intended.

YOUR DUTY, DOCTOR, HAVE YOU DONE IT?

EVERY ETHICAL PHYSICIAN IN THE STATE SHOULD BELONG TO THE ILLINOIS STATE MEDICAL SOCIETY

In numbers there is strength. United we stand, divided we fall. A united medical profession can brush away any and all obstacles. It is next to impossible to find a really successful physician who has obtained fame outside the pale of organized medicine.

Are all the eligible physicians in your county members of your local medical society? If non-members of local society are discovered get busy and try to induce them to join at the earliest opportunity.

THE TIME WILL COME WHEN WE SHALL HAVE IN WASHINGTON A BUREAUCRACY KNOWING NO MASTER

The federal government with its ear to the ground has caught the menace of the insidious invasion of bureaucracy into all departments of American life. The medical profession will do well to heed a candid protest against centralization in Washington of everything from spite fences to child bearing.

Ex-assistant Attorney General Crim in an arraignment of "Centralization of Power" before a meeting of federal, state and county law enforcement officers of the middle west held in Chicago some time ago said:

"The department of justice is staggering under the load imposed by sumptuary and police laws—laws that within all common sense fall within the natural sphere of local governments. Unless there is a halt in this tendency to saddle all responsibilities on the federal government the time will come when we shall have in Washing-

ton a bureaucracy knowing no master—and one day the country will be in ruins.”

Individual Americans may be so wearied of self-government that they would find respite in pushing the governing power far away from themselves. Unfortunately one of the penalties of a democracy's freedom is its necessarily individual responsibility. While the great American pastime may be that sequence of evasions known colloquially as “pasing the buck,” manifestly the place to pursue it is *not* in the routine tasks of running the government.

The flexibility and independence of state, county, community, city, ward, home and individual government is the foundation of any democracy. Liberty and responsibility are as irrevocably cemented as the Siamese and the Blazek twins. Principles of democratic liberty are discarded when bureaucratic despotism is established by centralization of authority and the sovereign rights of states are usurped by a progressive and malicious surrender of self-governing powers to national authority.

The world war was the precursor of a tremendous influx of destructive bureaucratic legislation; the number of these laws now on the statute book is legion. To enumerate them would be a task, but for purposes of illustration we mention as among those interesting most directly the medical profession—the Harrison law, the Sheppard-Towner Act and the general striving of the laity to dictate through legislation the practice of medicine. For many years unaided we fought this evil. We had been preaching against this very thing for a long time before the general public woke up to the danger of bureaucracy and paternalism. However, an awakened electorate is a valuable ally in combating evil. The ILLINOIS MEDICAL JOURNAL welcomes the aid of American patriots in its fight on centralization of power in Washington, or, in other words, bureaucracy and paternalism.

No taxpayer or student of national politics can take exception to the official warning given by Mr. Crim, ex-assistant attorney general, as quoted above. The number of federal employes has increased to such an alarming extent as to justify the prophecy of ex-Senator Stanley that the country will soon be divided into two classes—office holders and citizens who pay the salary of office holders. In spite of the increase in personnel of the bureaus at Washington, the complaint is almost universal that never was the

operation of the federal courts slower and more unsatisfactory or the conduct of the innumerable boards and bureaus at Washington more hopelessly entangled with expensive red tape.

BIRTH CERTIFICATES MUST BE IN CONFORMITY WITH STANDARD TIME

The attorney general has ruled that birth certificates in all cases must be filled out with reference to Standard and not Daylight saving time, the Standard time being the time contemplated by the Legislature in the enactment of the Vital Statistics Act.

The attorney general in an opinion given March 4, 1924 (No. 11768) said in part:

“In drafting the Vital Statistics Act, the Legislature of this State in considering the date of birth could only have meant that said date of birth was to be fixed in accordance with Standard time, and local ordinances of any city, town or village in the State would not be in the mind of the General Assembly when passing laws Statewide in their scope and application.”

EDWARD SIMON MURPHY, M. D.

Dr. Edward Simon Murphy, of Dixon, Illinois, was a graduate of Rush Medical College in the class of 1897. He was born in Lee County, Illinois, on January 25, 1871, and died on Friday, March 22, 1935 aged 64. He was a fellow of the American College of Surgeons, a Fellow of the American Medical Association, the Illinois State Medical Society, and one of the charter members of the Lee County Medical Society, and also one of the charter members of the original Tri-state Medical Association, which has now become the Interstate Post Graduate Medical Association of North America. He was president of the Illinois Tuberculosis Association from 1931 to 1934, and continued as a member of the executive committee of that association until his death. He was a member of the American Association for the Study of Goiter, and was president emeritus of the Dixon College Alumni Association. He was widely known among the doctors in the central part of the United States, for he was perhaps the most consistent attendant at all medical meetings. He was stricken while attending a meeting of the Lee County Medical

Society and his own diagnosis was that of cerebral hemorrhage. He gave to his family a correct prognosis of the duration and result of his final illness. The extent of his friendship among the medical profession and the laity was demonstrated by the fact that his funeral was the largest of any ever held in Dixon. His unfortunate death removes from our medical circles one of the most sincere friends and colleagues that the doctors of Illinois have known.

KENYON B. SEGNER, M. D.,
Secretary.

SPONTANEOUS HEMOPNEUMOTHORAX: CASE

In a case of spontaneous hemopneumothorax, with recovery, in a young man, and thirteen collected cases from the literature, Joseph L. Frey, New York (*Journal A. M. A.*, April 20, 1935) finds that no definite etiology is demonstrable, but three of the previously reported cases point strongly to a torn pleural adhesion and a ruptured emphysematous bulla or bleb as the cause. All cases reported, including the present one, occurred in the male. Aspiration of the blood is the procedure of choice.

CLINICAL SPECTROSCOPY: SEVENTY CASES OF GENERALIZED ARGYROSIS FOLLOW- ING ORGANIC AND COLLOIDAL SIL- VER MEDICATION, INCLUDING A BIOSPECTROMETRIC ANALY- SIS OF TEN CASES

L. Edward Gaul and A. H. Staud, New York (*Journal A. M. A.*, April 20, 1935), observed and report seventy cases of argyria following the indiscriminate use of organic and colloidal silver compounds. The degree of discoloration is directly dependent on the duration and the intensity of solar or artificial radiation and the quantity of silver present. Argyria becomes clinically apparent after a silver retention approximating an equivalent of 8 Gm. of silver arsphenamine. A biospectrometric test supplies the syphilologist with a method of determining the silver retention before and during silver arsphenamine therapy. The total silver retention irrespective of the origin should never exceed 7 Gm. equivalent of silver arsphenamine. A biospectrometric analysis offers a new diagnostic test for the identification of an argyrosis.

PRIMARY ENDOMETRIOSIS OF THE URI- NARY BLADDER

Erle Henriksen, Baltimore (*Journal A. M. A.*, April 20, 1935), summarizes the more important theories of the genesis of endometriosis, as well as its mode of dissemination. He feels that the term "primary vesical endometriosis" should be limited to those cases in which no demonstrable contiguity with the uterus,

fallopian tubes or ovaries is present and in which there has been no surgical trauma of the bladder wall or its peritoneal reflection. In conformity with this criterion he presents a case, with illustrations, for no continuity could be demonstrated between the uterus and the bladder and, although there had been a previous pelvic operation, the bladder peritoneum had not been traumatized. The lesion usually presents a symptom complex recognized by its cyclic relation to the menstrual period and consisting of increased frequency of urination, dysuria and hematuria. The mode of treatment is dependent on the age of the patient, the size and localization of the tumor, and the general condition of the patient. Since there are cases presenting an atypical picture, this tumor may easily be mistaken for malignant lesions of the urinary bladder.

THE TESTIS HORMONE

Carl R. Moore, Chicago (*Journal A. M. A.*, April 20, 1935), discusses the biologic functions of utility that the testicle exercises in the organism. He presents some of the general phases and particular details of the testis hormone and discusses some of the principles and possibilities of its clinical application. The experimental animal must be depended on for presenting the various aspects, since knowledge of the manifestations of hormone deficiencies in man, of methods of detecting the presence or absence of the hormone, or of its utility in the species is so limited as to be of little value. It is apparent that the question of the clinical value of testis hormone is by no means settled. For attaining dependable results the problem must be considered from the broad point of view of social background and biologic principles. Real advancement must rest on honest critical work rather than on poorly conceived sporadic experimentation with hastily assumed results and unsubstantial claims. The principal sources of testis hormone are the testicles of large mammals and human urine. Testis hormone is obtained from the lipid fraction and has been sufficiently purified to yield crystals having a high potency. It appears chemically to be a ketone-alcohol; the only known method of detecting its presence consists in reactions produced in suitable animals. It is secreted continuously, or periodically, in different animals, and secretion is largely under the control of the pituitary gland. It is uncertain whether more than one hormone is secreted by the testis. Its clinical use is questionable; its primary function is the control of the accessory reproductive organs; it is not a testicular stimulant.

SLOW

Redhead: "I hate that man."

Blonde: "Why, what'd he do?"

Red: "He said I couldn't whistle. Just to show him I puckered up my mouth just as round and sweet, and what do you suppose he did?"

Blonde (blushing): "How should I know?"

Red: "Well, the darn' fool just let me whistle!"—
Annapolis Log.

ILLINOIS STATE MEDICAL SOCIETY

EIGHTY-FIFTH ANNUAL MEETING

FAUST HOTEL, ROCKFORD,

May 21, 22, 23, 1935

THE PRESIDENT'S DINNER

Wednesday Evening, May 23, 1935

South Ball Room

Wednesday evening is devoted to the honoring of the President of the Illinois State Medical Society, Dr. Charles S. Skaggs, of East St. Louis. This Dinner will be held in the South Ball Room of the Faust Hotel at 6:30 o'clock. The exact program for this occasion will be released for your information the evening of the dinner.

It is hoped that every member of the Illinois State Medical Society in attendance at the annual meeting will join together to make this a most memorable event. The immediate Past President, Philip H. Kreuscher, will be the toast master, and he will introduce the Past Presidents of the Society who will be guests of the Society at the dinner. None of them will be asked to make a speech, and there will be no speech making during the dinner program.

The Chairman of the Council, R. K. Packard, at the close of the Dinner will present the President with his President's Certificate, as a presentation from the Council.

DO NOT FORGET THE PRESIDENT'S DINNER.

VETERANS' SERVICE COMMITTEE DINNER

The annual dinner meeting of the Veterans' Service Committee will be held on Tuesday evening, May 21, at 6:00 o'clock in the Rainbow Room of the Faust Hotel.

Dr. F. O. Fredrickson, Chairman of the Veterans' Service Committee, will be in charge of the program.

Every physician, whether a veteran or not, is cordially invited to attend this meeting.

PROGRAM

"Why Hospitalization of Non-Service Connected Cases?"—Elmer W. Mosley, M. D., Department Surgeon, Department of Illinois American Legion, Chicago.

"Veterans' Medical Legislation as It Affects the Medical Profession"—E. H. Cary, M. D., Past President of the A. M. A., Chairman of Committee on Veterans' Affairs, Dallas, Texas.

"The Service Program of American Legion"—

Paul G. Armstrong, Commander of the Department of Illinois, American Legion.

THE STAG

The Winnebago County Medical Society is arranging an interesting "Stag" for members and guests at the meeting, although they are not yet willing to make specific announcements relative to the nature of same. During the "Stag," motion pictures showing the work done by the American Medical Association, the "plant," printing presses and other equipment at headquarters will be featured in this interesting film. Every member of the A. M. A. should know what the Association is doing not only for physicians, but also for the public in general, and this film gives this interesting information.

We are reliably informed that there will be nothing in any way offensive to anyone at the stag, and it is hoped that all members and guests of the Society will be present on Tuesday evening, May 21, at 9:00 o'clock.

ALUMNI AND FRATERNITY BANQUET

The Committee on Alumni and Fraternity Banquet have set aside the hours of 6:30-8:30 P. M. Tuesday for a general alumni and fraternity banquet. Any alumni group or members of fraternities desiring to get together on this occasion will have the privilege of organizing their own group. Special reservations will be made according to the desires of individual groups. Anyone desiring additional information on the subject may make definite arrangements by writing the Chairman of the Alumni and Fraternity Banquet Committee, Dr. W. K. Ford, or Dr. Homer Moore, Rockford, Illinois. Although definite plans for this feature have not been announced, complete details will be available to all desiring same within a short time.

CONVENTION GOLF

The State Medical Society meeting at Rockford holds forth an unusual allure for the golfer. The Golf Committee has arranged for members of the Society to play on the Rockford Country Club course. This is one of the finest courses in the Mid-west; it has been the scene of many notable tournaments, including the Western Amateur; this year the Illinois State Professional and Amateur tournaments are to be held here. The fairways are watered and the course generally is kept in excellent shape; this, with its picturesque location, running for almost a mile along the west bank of beautiful Rock River, combines to assure

the golfer of a wonderful treat. So bring your clubs for one or more rounds of golf.

The Committee have planned suitable prizes for the Handicap Tournament, which will be staged Tuesday, May the twenty-first. In addition, the Course will be open to members of the Illinois State Medical Society on Monday, May the twentieth, through Thursday, if members wish to play a practice round before Tuesday, or later.

Excellent cuisine is available at the club, at nominal prices, and the men's locker room porch, high above the river, offers an ideal spot to rest after a round of golf.

The Golf Committee, chairman of which is Dr. W. L. Crawford, Rockford, Illinois, will be glad to give any information desired.

MEETINGS OF THE HOUSE OF DELEGATES

Tuesday Afternoon, May 21, 1935

Junior Club Room

3:00—First meeting of the House of Delegates called to order by the President, Charles S. Skaggs, for Reports of Officers, Councilors, Committees, introduction of resolutions, and for the transaction of other business which may come before the House.

Thursday Morning, May 23, 1935

Junior Club Room

8:30—Second meeting of the House of Delegates called to order by the President, for election of officers, councilors, committees, and delegates and alternates to the American Medical Association. Reports of Resolutions Committee and action on same, and for the transaction of other business that may come before the House.

SECRETARIES' CONFERENCE

Elizabeth R. Miner, *Chairman*.....Macomb
C. D. Snively, *Vice-Chairman*.....Ipava
Donald W. Killinger, *Secretary*.....Joliet

Tuesday Morning, May 21, 1935

Junior Club Room

9:00-12:00—"Is Medical Relief a Forerunner of State Medicine?"—Mr. B. C. Roloff, State Director of Medical and Dental Service of the Illinois Emergency Relief Commission, Chicago.

Discussion opened by C. E. Wilkinson, Councilor of the 8th District of the Illi-

nois State Medical Society, Danville.

"Medical Economic Problems of Today and the Future."—Olin West, Secretary and General Manager of the American Medical Association, Chicago.

Discussion opened by Harold M. Camp, Secretary of the Illinois State Medical Society, Monmouth.

"Can Medicine Solve Its Own Problems?"—Bowman C. Crowell, Associate Director of the American College of Surgeons, Chicago.

Discussion opened by John R. Neal, Chairman of the Legislative Committee of the Illinois State Medical Society, Springfield.

"Health Insurance and Other Plans for the Solution of Medical Economic Ills."—R. K. Packard, Chairman of the Council of the Illinois State Medical Society, Chicago.

Discussion opened by Edwin S. Hamilton, Councilor of the 11th District of the Illinois State Medical Society, Kankakee.

Annual Election of Secretaries' Conference.

PEDIATRICIANS' MEETING

W. L. Crawford, *Chairman*.....Rockford
John Vonachen, *Vice-Chairman*.....Peoria
Arthur H. Parmelee, *Secretary*.....Oak Park

Tuesday Morning, May 21, 1935

Parlor A—Florentine

9:00-12:00—"Scarlet Fever, Susceptibility and Immunization."—Silber C. Peacock, Chicago.

At least 75 per cent. of the cases of scarlet fever occur in the first ten years of life. The most susceptible age level is from 2 to 5 years. Less than one per cent. of the cases are found in the first year of life.

In general the Dick test has proven to be a dependable measure of susceptibility with the exception that, new born infants and probably those under nine months of age react unreliably to the test.

Active immunization against the disease by means of the toxin employing: (a) Injections of graduated doses of the toxin as recommended by the Dicks, (b) Veldee's alum toxoid, (c) Toxin inunctions, (d) Dick's oral administration of the toxin, and (e) Administration of the toxin into the nasopharynx and also by sprays, is reviewed. Most of the emphasis is laid on the injection route for immunization in institutions and private practice, commenting on the durability of the immunity.

Discussion opened by Ray C. Armstrong, Champaign; and John S. McDavid, Oak Park.

"Significance of Electrocardiography in Children."—M. M. Lewison, Chicago.

Since the electrocardiogram will show inflammatory changes of the myocardium as well as degenerative changes, it should be used more extensively in the diagnosis and treatment of proven and suspect heart conditions in children. In some cases of acute rheumatic fever in children, where clinical findings show no evidence of heart involvement, the electrocardiogram will reveal myocardial damage, as evidenced by a prolonged auriculo-ventricular conduction time or an abnormality in the S-T take-off. Cardiac arrhythmias which can be diagnosed clinically in only about 75% of the cases, can be diagnosed by means of electrocardiography in 100% of the cases. Diphtheritic myocarditis is of two types, namely degenerative and inflammatory. The inflammatory changes are sometimes of such a mild nature as to be missed entirely clinically, and can only be picked up by means of the electrocardiogram. In cases of mild infections such as acute tonsillitis, or septic sore-throat where a murmur is heard over the heart area, the electrocardiogram will sometimes decide whether it is on a functional basis or not.

Discussion opened by H. W. Elghammer, Chicago; and J. H. Wallace, Oak Park.

"The Allergic Infant."—Gerald M. Cline, Bloomington.

This paper is limited to allergic conditions existing in children two years of age and under.

Hereditary influence in these conditions is briefly outlined.

Gastrointestinal phase of allergy is particularly emphasized. Thorough discussion of colic and its differential diagnosis.

Two other main allergic conditions discussed somewhat in full are eczema and asthma; while some other less important conditions are mentioned.

Various methods of skin testing and their value in the diagnosis is thoroughly brought out.

Final paragraphs are composed of the methods of successful management of the main allergic conditions in children under two years of age.

The science of allergy in itself is not a panacea for all ills but the ideals of this paper may help make us all a little more allergic-minded in the care and management of the infant.

Discussion opened by I. H. Tumpeer, Chicago; and J. P. Burgess, Rock Island.

"The Problem of the Asthmatic Child."
—F. W. Schultz, Chicago.

Discussion opened by O. E. Ehrhardt, Springfield; and Stanley Gibson, Chicago.

"Pertussis Immunization."—Carl E. Sibilsky, Peoria.

Discussion opened by King G. Woodward, Rockford; and S. C. Henn, Chicago.

PEDIATRICS PAPERS IN SCIENTIFIC SECTIONS

Wednesday, May 22, 10:15 A. M.

SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Archibald Hoyne of Chicago, Illinois.
Subject—"Meningococcus Meningitis, Importance of Intravenous Therapy."

Discussion by Dr. Joseph T. O'Neill of Ottawa.

Wednesday, May 22, 10:40 A. M.

SECTION ON PUBLIC HEALTH AND HYGIENE

Dr. Joseph Greengard of Chicago, Illinois.
Subject—"Passive Immunity in Infants and Their Response to Diphtheria Toxoid."

Discussion by Dr. Maurice L. Blatt and Dr. I. Harrison Tumpeer of Chicago.

Wednesday, May 22, 3:30 P. M.

SECTION ON RADIOLOGY

Dr. John F. Carey of Joliet, Illinois.
Subject—"Value of X-Ray in Pediatric Diagnosis."

Discussion by Dr. Craig D. Butler of Oak Park and Dr. John A. Bigler of Highland Park.

Wednesday, May 22, 4:50 P. M.

SECTION ON MEDICINE

Dr. Scott J. Wilkinson of Decatur, Illinois.
Subject—"Stumbling Blocks in Infant Care."

Discussion by Dr. Arthur F. Abt of Chicago, and Dr. M. D. McNeal of Highland Park.

WOMEN PHYSICIANS' MEETING FAUST HOTEL

Tuesday, May 21, 1935

Dr. Anna Weld, Rockford, Presiding.

9:00—Breakfast, Hotel Faust.

Announcements regarding the Medical Women's National Association Meeting and the International Meeting.

10:00—"Hereditry—A Factor in the Etiology of Cancer."—Maud Slye, University of Chicago.

11:00—"Some Phases of the Cancer Control Problem."—Frances A. Ford, Chairman for the Cancer Symposium at the Edinburgh Meeting (1937) of the Medical Women's International Association, and Director of Radio-Therapy of the Women's Hospital, Detroit, Michigan.

11:30—Round Table Discussion of the Cancer Control Problem:

What can the woman physician do in this field?

Program making.

Literature, films and exhibits.

It is hoped that the Illinois Chairman for the American Society for the Control of Cancer, Dr. James O. Simonds, will be present to participate in the discussion.

12:30—Adjournment.

SCIENTIFIC EXHIBITS

11th Floor Lobby, Faust Hotel

Booth A—"Pathology of Coronary Disease."—R. H. Jaffe, Department of Pathology, Cook County Hospital, Chicago.

Booth B—"Disorders of Glands of Internal Secretions."—Willard O. Thompson; Phebe K. Thompson; S. G. Taylor III; S. B. Nadler and E. G. McEwen, Rush Medical College; Presbyterian and Cook County Hospitals, Chicago.

Booth C—"Heart Movie—The Normal Heart Beat Cycle."—Clayton J. Lundy, Rush Medical College, Chicago.

Booth D—"Development of Gastrosocopy."—Rudolph Schindler, University of Chicago.

Booth E—"Diet in Health and Disease."—Clifford J. Barborka, Chicago.

Booth F—"Control of Scarlet Fever."—Paul S. Rhoads, Scarlet Fever Committee and McCormick Institute, Chicago.

Booth G—"Progress in Allergic Disease."—Samuel M. Feinberg, Northwestern University Medical School, Chicago.

Booth H—"Exhibit of the Chicago State Hospital; Roentgenological and Related Studies."—Roy Kegerreis, Consulting Radiologist, Chicago State Hospital.

Booth I—"Treatment at Elgin State Hospital."—Charles F. Read, Managing Officer, Elgin.

Booth J—"New Method of Preparation of Multicolored Corrosion Specimens."—Joseph K. Narat; John A. Loef; Mrs. Joseph K. Narat. University of Illinois College of Medicine, Department of Anatomy.

Mezzanine Floor

Booth K—"Council on Physical Therapy." American Medical Association, Chicago. (Under direction of John A. Coulter.)

Booth L—"Wesley Memorial Hospital—Arthritis Exhibit."—Philip H. Kreuscher; Gilbert H. Marquardt and T. P. O'Connor, Wesley Memorial Hospital, Chicago.

Booth M—"Management of Cranio-Cerebral Injuries." Skull Fracture Exhibit.—Harry E. Mock; A. R. Morrow and C. E. Shannon, St. Luke's Hospital, and Northwestern University Medical School.

Booth N—"Modern Radium Technique in the Treatment of Cancer."—Max Cutler, Director, Tumor Clinic, Michael Reese Hospital, Chicago.

Booth O—"Photographs of Interesting Unusual Tumor Cases, Especially of the Skin."—Veterans' Administration Facility, W. E. Kendall, Chief Medical Officer, Hines, Illinois.

Booth P—"Distribution of Physicians and Hospitals in the United States."—American Medical Association, Chicago.

Booth Q—"Illinois Department of Public Health and Illinois State Planning Commission."—Hon. Henry Horner, Governor; Frank J. Jirka, Director; and Mr. Robert Kingery, Chairman.

Main Floor Lobby

Booth R—"The Exhibit of the Institute of Medicine of Chicago at A Century of Progress."—Oscar T. Schultz, Chairman Medico-Legal Committee, Chicago Institute of Medicine.

Note—Presentation of exhibit at this meeting through the courtesy of the Museum of Science and Industry of Chicago. Depicting the Coroner's Office as a Medico-Legal Agency.

MOTION PICTURE DEMONSTRATIONS

Room 1003, Faust Hotel

Tuesday, May 21, 1935

11:00—Technique of Gastrosocopy.—Rudolph Schindler, University of Chicago.

11:45—Mechanism and Electrocardiographic Registration of the Normal Heart Beat Cycle.—Clayton J. Lundy, Rush Medical College.

2:30—Reconstruction Surgery Following Poliomyelitis.—Daniel H. Levinthal, Cook County and Michael Reese Hospitals.

3:15—Scarlet Fever Control.—Paul S. Rhoads, Scarlet Fever Committee, McCormick Institute for Infectious Diseases.

4:00—Treatment at Elgin State Hospital.—Charles F. Read, Elgin State Hospital.

4:45—Surgical Relief of Arthritic Damage.—

Paul B. Magnuson, Wesley Memorial Hospital.

Wednesday, May 22, 1935

- 9:30—Mechanism and Electrocardiographic Registration of the Normal Heart Beat Cycle.—Clayton J. Lundry, Rush Medical College.
- 10:15—Reconstruction Surgery Following Poliomyelitis.—Daniel H. Levinthal, Cook County and Michael Reese Hospitals.
- 12:00—Scarlet Fever Control.—Paul S. Rhoads, Scarlet Fever Committee, McCormick Institute for Infectious Diseases.
- 2:15—Treatment at Elgin State Hospital.—Charles F. Read, Elgin State Hospital.
- 3:00—Surgical Relief of Arthritic Damage.—Paul B. Magnuson, Wesley Memorial Hospital.
- 3:45—Technique of Gastroscopy.—Rudolph Schindler, University of Chicago.

Thursday, May 23, 1935

- 8:15—Reconstruction Surgery Following Poliomyelitis.—Daniel H. Levinthal, Cook County and Michael Reese Hospitals.
- 9:00—Scarlet Fever Control.—Paul S. Rhoads, Scarlet Fever Committee, McCormick Institute for Infectious Diseases.
- 9:45—Treatment at Elgin State Hospital.—Charles F. Read, Elgin State Hospital.
- 10:30—Surgical Relief of Arthritic Damage.—Paul B. Magnuson, Wesley Memorial Hospital.
- 11:15—Technique of Gastroscopy.—Rudolph Schindler, University of Chicago.
- 12:00—Mechanism and Electrocardiographic Registration of the Normal Heart Beat Cycle.—Clayton J. Lundy, Rush Medical College.

FRACTURE DEMONSTRATIONS

Tuesday, May 21, 1935

- 8:30-9:00—Open Reduction of Fractures and Their Indications.—Rudolph Mroz, Rockford.
- 9:00-9:30—(a) Fractures Involving the Shoulder Joints.
(b) Fractures of the Clavicle.—Hugh Cooper, Peoria.

- 9:30-10:00—(a) Fractures of the Ulna and Radius.
(b) Fractures and Dislocations of the Carpal Bones.—George L. Apfelbach, Chicago.
- 10:00-10:30—Traction Method for Reduction of Fractures of the Leg and Forearm.—James H. Finch, Champaign.
- 10:30-11:00—(a) Dislocation of the Sacroiliac Joint.
(b) Fracture of the Pelvis.—Harry E. Mock, Chicago.
- 11:00-11:30—(a) Fractures About the Ankle Joint.
(b) Fractures of Vertebrae.—Daniel H. Levinthal, Chicago.
- 11:30-12:00—Treatment of Fractures Involving the Knee Joint.—F. N. Cloyd, Danville.
- 12:00-12:30—(a) Dislocations of the Shoulder Joint.
(b) Reconstruction of Crucial Ligaments.—William R. Cubbins, Chicago.
- 5:00-5:30—Fractures of the Shaft of the Femur.—James J. Callahan, Chicago.
- 5:30-6:00—Fractures of the Tibia and Fibula.—G. W. Staben, Springfield.

Wednesday, May 22, 1935

- 8:30-9:00—Fractures into the Elbow Joint.—Sidney H. Easton, Peoria.
- 5:00-6:00—Symposium on Fractures of the Neck of the Femur. (Discussion limited to 10 minutes.)
1. Philip H. Kreuscher, Chicago.
 2. G. W. Staben, Springfield.
 3. Paul B. Magnuson, Chicago.
 4. F. N. Cloyd, Danville.
 5. George F. Apfelbach, Chicago.
 6. Sidney H. Easton, Peoria.

Thursday, May 23, 1935

- 8:00-9:00—Compensation and Estimation of Disability in Industrial Fractures.—Arthur H. Conley, Chicago.

WOMAN'S AUXILIARY AND ALL VISITING LADIES OFFICERS

President, Mrs. Lucius Cole. River Forest
Vice-President, Mrs. W. D. Chapman. Silvis
First Vice-President, Mrs. W. R. Cubbins.
..... Chicago

Second Vice-President, Mrs. H. I. Conn.....
Newman
 Third Vice-President, Mrs. Meyer Solomon....
Chicago
 Corresponding Secretary, Mrs. J. P. Simonds..
Chicago
 Recording Secretary, Mrs. W. Raim....Chicago
 Treasurer, Mrs. F. P. Hammond.....Chicago
 Convention Chairman, Mrs. Harry J. Dooley...
Oak Park

CHAIRMEN OF LOCAL COMMITTEES

General Chairman....Mrs. Joseph S. Lundholm
 Registration.....Mrs. W. R. Fringer and
 Mrs. T. H. Culhane
 Information.....Mrs. M. P. Rogers and
 Mrs. H. W. Ackemann
 Hygeia.....Mrs. H. B. Henkel
 Tickets.....Mrs. E. H. Weld

SOCIAL EVENTS

Tuesday Luncheon.....Mrs. J. M. Severson
 Rockford College Tea.....Mrs. John Green
 Bridge Dinner.....Mrs. E. T. Leonard
 President's Luncheon.....Mrs. C. A. Cibelius
 Golf.....Mrs. C. A. Cibelius
 Transportation.....Mrs. R. Bosworth and
 Mrs. C. H. Boswell
 Trip to Oregon and Tea at Oregon Country
 Club.....Mrs. L. Wermoltz

PROGRAM

Tuesday, May 21, 1935

9:00—Registration.
 10:00—Board Meeting, Room 803, Hotel Faust.
 12:00—Luncheon, Hotel Faust.
 Mrs. Lucius Cole, presiding.
 1:30—Business Session, Hotel Faust.
 Address of Welcome—Mrs. Joseph S.
 Lundholm, Chairman of Temporary
 Auxiliary of Rockford.
 Response—Mrs. A. H. Brumback.
 3:30—Tea on College Campus of Rockford Col-
 lege followed by Informal Program of
 Rockford College Students.
 7:00—Bridge Dinner—Forest Hills Country
 Club.
 Mrs. Lucius Cole, presiding.
 Address—Dr. C. S. Skaggs, President,
 Illinois State Medical Society.

Wednesday, May 22, 1935

8:00—Breakfast—Parlor A. Hotel Faust.

Rockford Temporary Auxiliary Hos-
 tesses to State Board Members.

9:30—Business Session—Main Dining Room,
 Hotel Faust.
 12:00—President's Luncheon—Rockford Coun-
 try Club. Mrs. Lucius Cole, presiding.
 Address—Dr. C. B. Reed, President-elect
 of the Illinois State Medical Society.
 Introduction of the Incoming President,
 Mrs. W. D. Chapman, and of the newly
 elected officers of the Illinois State
 Board, Woman's Auxiliary.
 2:00—Golf—Rockford Country Club.
 2:00—County President's Conference with Mrs.
 Chapman.
 2:30—Drive down Rock River road to Oregon
 with tea at Oregon Country Club.
 7:00—President's Dinner and Dance—Ball
 Room of the Hotel Faust.

Thursday, May 23, 1935

9:00—Post-Convention Board Meeting, Room
 803. Mrs. Chapman presiding.

SOCIAL FUNCTIONS

TUESDAY

12:00—Luncheon—Hotel Faust.
 3:30—Tea on Rockford College Campus.
 7:00—Bridge Dinner—Forest Hills Country
 Club.

WEDNESDAY

8:00—Breakfast—Hotel Faust.
 12:00—Luncheon—Rockford Country Club.
 2:00—Golf—Rockford Country Club.
 2:30—Drive down Rock River road to Oregon.
 7:00—President's Dinner and Dance.

ILLINOIS STATE MEDICAL SOCIETY
 EIGHTY-FIFTH ANNUAL MEETING

ROCKFORD, ILLINOIS

May 21, 22, 23, 1935

FAUST HOTEL

GENERAL SESSIONS

OPEN MEETING

Tuesday Afternoon, May 21, 1935

South Ball Room

1:00—Eighty-Fifth Annual Meeting of the
 Illinois State Medical Society officially

opened by the President, Chas. S. Skaggs, East St. Louis.

1. Invocation—Rev. John Gordon, Pastor, Second Congregational Church, Rockford.
 2. Address of Welcome—Hon. G. Henry Bloom, Mayor of Rockford.
 3. Address of Welcome—Joseph S. Lundholm, M. D., President, Winnebago County Medical Society, Rockford.
 4. Report of Chairman, Committee on Arrangements—T. H. Culhane, M. D., Rockford.
 5. Adjournment for Oration in Medicine.
- 1:30—Oration in Medicine—"Changing Concepts of Clinical Medicine."—James S. McLester, President-elect, American Medical Association, Birmingham, Alabama. (By invitation.)

Wednesday Morning, May 22, 1935

- 11:00—Oration in Surgery—"The Role of Surgery in the Disturbances of the Thyroid Gland."—Martin Nordland, Minneapolis, Minnesota. (By invitation.)

Wednesday Afternoon, May 22, 1935

- 1:30—President's Address—"The Fundamentals of Medical Religion."—Charles S. Skaggs, President, Illinois State Medical Society, East St. Louis.

Thursday Morning, May 23, 1935

Induction of the President-elect.

Immediately following the close of the last meeting of the House of Delegates, Dr. Charles B. Reed will be inducted into the office of President by the retiring President.

All members and guests are invited to be present at the induction of the President-elect.

SECTION PROGRAMS

SECTION ON MEDICINE

Don C. Sutton.....Chairman
George Parker.....Secretary

Tuesday Afternoon, May 21, 1935

South Ball Room

Joint Session with Section on Public Health and Hygiene.

SYMPOSIUM ON OBSCURE FEVERS

2:45—"Symptoms and Diagnosis."—James G. Carr, Chicago.

A discussion of "Obscure Fever" demands a definition of the term. Two groups are presented. The first includes the cases of fever, subfebrile in type, which run a prolonged course. Often a satisfactory diagnosis is never made. The symptoms are mild in character, suggestive of a mild infection. An acceptable diagnosis is frequently impossible.

The second group includes cases of greater severity with symptoms characteristic of infection. The obscurity here lies in our inability to determine the nature of the infection promptly. Few of these cases go undiagnosed for more than three or four weeks. The general principles of diagnosis are also discussed.

Discussion opened by Frank Deneen, Bloomington.

3:15—"Epidemiology."—G. Koehler, Springfield.

Definitions: Comprehensiveness of the Subject. Significance of fever in epidemiology. (a) In the early recognition of such common diseases as measles, whooping cough and typhoid fever. (b) As an aid in the recognition of tularemia and undulant fever. (c) Its value in the recognition of epidemic cerebrospinal meningitis and encephalitis in outbreaks of these diseases. (d) Of doubtful value in differentiating influenza from non-specific acute respiratory infections. (e) As an index of activity or infectivity of tuberculosis.

While the recognition and consideration of fever is valuable in the diagnosis of the aforesaid epidemic diseases and thus an aid in the epidemiological work, fever alone as a symptom can never be the basis of such work.

Discussion opened by John J. McShane, Chief of the Division of Contagious Diseases, Illinois State Department of Public Health, Springfield.

3:45—"Laboratory Aids in the Diagnosis of Fevers of Obscure Origin."—Mr. H. E. McDaniels, Chicago.

In the diagnosis of obscure fevers of infectious origin, valuable evidence is often obtained from laboratory tests. This paper discusses the available bacteriological and serological procedures for the detection of the infectious agents most frequently involved in such fevers. Consideration is given to the interpretation and diagnostic importance of various laboratory findings. The subject is treated from the point of view of a public health laboratory and the tests offered by such a laboratory.

Discussion opened by Cecil Jack, Decatur.

4:15—"Treatment."—Clarence H. Boswell, Rockford; and Anfin Egdahl, Rockford.

5:00—Discussion.

Wednesday Morning, May 22, 1935

South Ball Room

8:30—"Herpes Zoster."—F. G. Norbury, Jacksonville.

The subject is taken up from the standpoint of herpes zoster as an infection of the nervous system. Differential diagnosis between it and other conditions is discussed with two case reports illustrating differentiation. Zoster of the cranial nerves is mentioned. Procedures helpful in the management are described.

Discussion opened by Sidney D. Wilgus, Rockford.

8:50—"Backache: A Discussion of Low Back Pain in Women."—Samuel J. Lang, Evanston.

A common cause of backache in multiparous women is anteversion of the pelvis resulting in ligamentous and muscle strain. X-ray films show no bony changes in the early stages but lateral films taken in the upright position may show an increased sacral angle or a horizontal sacrum.

Complications such as hypertrophic arthritis of the small joints, migration of the nucleus pulposus and horizontal sacrum follow some uncorrected cases. Most uncomplicated cases respond to such simple procedures as rest, heat, massage, postural exercises, adequate support and the correction of abnormal body weight.

Discussion opened by Rudolph Mroz, Rockford.

9:10—"The Importance of Interdermic Reactions as an Aid to Diagnosis and Degree of Susceptibility to Disease."—C. A. Earle, Des Plaines.

A discussion of the use of the skin reactions and their importance to the general practitioner. Not only the importance of the Shick, Mantoux and Dick tests, but also the use of skin tests in undulant fever, tularemia, trichinosis and several dermatoses.

Discussion opened by H. C. Niblack, Chicago.

9:30—"Paroxysmal Dyspnea."—Diagnosis and Treatment.—Leon Unger, Chicago.

Importance and frequency of conditions characterized by spells of difficult breathing. Differential diagnosis between cardiac and bronchial asthma. Consideration of other causes. Treatment with special reference to that of cardiac and bronchial asthma. Results of treatment. Prognosis.

Discussion opened by George Parker, Peoria.

9:50—"Congenital Dysfunction of the Salivary Glands, with Observations on the Physiology of Thirst."—V. Thomas Austin, and F. R. Steggerda, Champaign.

Congenital absence of salivary secretion is reported in a white male, 28 years of age. A review of the literature reveals only three previously reported cases. Extensive dental caries has been observed in all. The con-

troversial subject of salivary secretion and its effect on the fluid intake is reviewed. Observations on this patient fail to support the view that salivary secretion governs quantity fluid intake. The physiology of thirst is discussed.

Discussion opened by Earl A. Zauss, Northwestern Dental School, Chicago.

10:10—"The Complications of Diabetes Mellitus."—C. J. McMullan, Chicago.

The diabetic in his journey through life is confronted by certain complications which occur frequently enough to be considered as definitely related to this metabolic disorder.

A review of 129 diabetic deaths occurring in the Cook County Hospital in 1933 revealed the various causes of death which must be considered if we are to prolong the diabetic's life. The average age of the onset of diabetes is 51 years. The greatest number of living diabetics are over 40. The largest number of deaths occurred between 50 and 70, with gangrene as the principal cause. Coma caused 35 deaths, approximately one-third of which were due to acute infections. Tuberculosis caused 17 deaths. To prolong the diabetic's life it is necessary to avoid as far as possible acute infections, gangrene, coma and tuberculosis.

Discussion opened by H. E. Ross, Danville.

10:40—"Diet in Diseases of the Skin."—Friederick Rehm Schmidt, Chicago.

A short summary of the pertinent experimental data underlying the rational dietotherapy of skin diseases is presented. The problem of nutritional allergy. Only those dermatoses in which diet has proved its worth are considered. Diet of definite benefit in acne, deficiency diseases, pellagra, lupus vulgaris, certain forms of infantile eczema, furunculosis and pyoderma.

Discussion opened by Arthur W. Stillians, Chicago.

Wednesday Afternoon, May 22, 1935

South Ball Room

2:30—Chairman's Address—"Intangibles in Diagnosis."—Don C. Sutton, Chicago.

2:50—"Analysis of Treatment of 101 Cases of Lung Abscess."—Harold C. Leuth, Evanston.

Cases of lung abscess are best treated by first considering the patient then the abscess. A number of beds have been suggested to accomplish complete evacuation of pus. Drainage to be effective must be gravitational and is begun as soon as the diagnosis is made.

An ordinary "cold," pneumonia, and oral operations are among the most common etiologic factors. General medical care such as can easily be given in the home resulted in a very high percentage of improvements and cures. Those cases in whom the diagnosis of lung abscess was made early and in whom treatment began at once had a very favorable outcome. When general medical care was supplemented by bronchoscopic aspira-

tions better results followed. Delays in treatment, occasioned by uncertainty in diagnosis, decreased the incidence of cure by medical means. Thoracic surgery was done in about 30 per cent. of the group usually with less desirable end results.

Discussion opened by F. M. Meixner, Peoria.

3:10—"A Clinical View of Bone Marrow Depression."—E. M. Stevenson, Bloomington.

Clinical observation made on a series of cases of proven granulocytopenia without a history of previous drug injection. Suggestion is made that there is a predisposition on the part of the patient to granulocytopenia which exists by nature of a reversion of the bone marrow to the infantile type when activated by outside stimulation.

Discussion opened by Ben Markowitz, Bloomington.

3:30—"Spinal Epidural Abscess, with Presentation of Two Cases."—Dean Stanley, Decatur.

A short discussion of the anatomy of the spinal epidural space, short discussion of the etiology and pathology of spinal epidural abscess, and case histories of two pyogenic spinal epidural abscesses. One in a youth of 19 with paresis of the lower extremities, diminished sensation and girdle pains, who recovered following laminectomy; the other in a girl of 5 with rigidity of the back and neck, abdominal girdle pains, leukocytosis and fever, who also recovered following laminectomy. Both cases showed Froin's syndrome.

Discussion opened by Lewis J. Pollock, Chicago.

3:50—"Leucopenic Index in Intractable Asthma."—Michael Zeller, Chicago.

In September, 1934, Vaughn described the use of the leucopenic index in the diagnosis of food allergy. The procedure is based on the fact that in allergic reactions there is a leucopenia. A fasting white blood count is taken after which the food is eaten and 4-6 repeated counts are done at 20 minute intervals. If a leukocytosis follows the patient is usually not considered sensitive to the food in question, and if there is a leucopenia a sensitivity is assumed to exist. The procedure should supplement skin tests, trial diets and clinical tests. It is particularly valuable in the group of intractable allergies in which the usual diagnostic measures are ineffective.

4:10—"Treatment of the Neuroses."—Samuel H. Kraines, Chicago.

A systemized approach to the neuroses is proposed, which may be applied by the general practitioner. The neuroses (psychoneuroses) are essentially the result of maladjustment. This maladjustment is due to a defective constitution and poor early influence, or to environmental or emotional strain, or both. The patient's psychoneurotic symptoms are the vicarious expression of this inability to adjust. Principles of treatment, the

techniques of free association, hypnosis, and the establishment of mental hygiene are discussed.

Discussion opened by Edward Dombrowski, Chicago.

4:30—"Treatment of Tertiary Lesions of Syphilis."—B. Barker Beeson, Chicago.

What constitutes tertiary skin syphilis. Importance of its clinical diagnosis. Serological findings, the biopsy, the therapeutic test, etc. Its differentiation from simulating skin conditions. Whether non-ulcerated and simulating chiefly the nodule or else ulcerated and resembling the gumma. Factors influencing treatment. The treatment suggested in such patients.

Discussion opened by William K. Ford, Rockford.

4:50—"Stumbling Blocks in Infant Care."—Scott J. Wilkinson, Decatur.

This paper considers certain disturbances and variations from expected behavior in infants, in which the underlying cause is not always readily apparent. From the pediatric viewpoint these difficulties are more commonly misinterpreted, and therefore at times mismanaged.

Thursday Morning, May 23, 1935

South Ball Room

Joint Session with Sections on Surgery, Eye, Ear, Nose and Throat, and Radiology.

9:00—"Diseases of the Colon as a Source of Abdominal Pain."—L. C. Gatewood, Chicago.

The mechanism involved in production of pain in the colon. Characteristics of the pain. Variations in localization and reference. Simulation of other abdominal disorders. Diagnosis and differential diagnosis of conditions producing pain in the colon. Laboratory and x-ray findings. Management of the commoner types of colitis. Importance of functional nervous factors in this group of cases.

Discussion opened by Richard Herndon, Springfield.

9:40—"Roentgenology of the Alimentary Tract."—Maximilian J. Hubeny, Chicago.

Roentgenology of the alimentary tract is indispensable; the tract is about thirty feet long and has many anatomic and physiologic divisions and many accessory organs such as teeth, salivary glands, liver and pancreas. Many reflex symptoms may exist, consequently it is often desirable to make a comprehensive examination. No examination is complete without a combined fluoroscopic and film examination. There is a great tendency to cut down on the number of films, this is a great mistake, because certain findings are not fluoroscopically conclusive. These examinations are time consuming and frequently a re-examination is necessary. From the eco-

nomic viewpoint these examinations involve quite an overhead and under the present day conditions considerable indifferent examinations are performed wilfully, with the object of reducing the overhead, with the consequences that the highest traditions of medicine are destroyed because of inadequate service. It therefore is quite necessary that the profession sense these trends.

Discussion opened by Benjamin H. Huggins, Evanston; and Lawrence Mayers, Chicago.

10:10—"The General Principles of Intestinal Surgery."—George De Tarnowsky, Chicago.

A practical knowledge of the development of the intestinal tract and of its physiologic functions is considered a pre-requisite to intelligent handling of its surgical problems.

The significance of intestinal distention, hyperperistalsis and aperistalsis and their clinical interpretation are considered.

The importance of observation, palpation, percussion and auscultation in making a differential diagnosis is stressed.

The theories of intestinal toxemia and their probable nature are reviewed. The higher the level of obstruction, the stronger the factor of toxemia.

Causes of circulatory and respiratory failure and death in intestinal obstruction—Anhydremia, Dechlorination, Alkalosis, rise of blood-urea and non-protein-nitrogen are evaluated.

The Barium enema and x-ray as a diagnostic aid; its value, limitations and dangers.

Emphasis on early decompression in intestinal obstruction; operative and non-operative procedures.

General principles of treatment; lowering mortality by two-step operative procedures; exceptions. Importance of individualization in selecting the type of surgical procedure.

Summary and conclusions.

Discussion opened by Carl E. Black, Jacksonville.

11:10—"The Hygiene of Reading."—James E. Lebensohn, Chicago.

Two considerations are involved in the hygiene of reading—avoidance of any deleterious influence on eyesight, and maintenance of the highest reading efficiency. The latter requires not only that the eye as an optical organ should function perfectly, but that external factors—illumination, size, contrast, and period of exposure—have optimal values, and that centrally the cerebral processes involved be developed and trained. An analysis is made of the physiology of reading, and of the medical, physical and psychological factors that make reading difficult.

Discussion opened by George J. Mehr, Chicago.

11:50—"Conservation of Hearing."—Frank Novak, Jr., Chicago.

SECTION ON SURGERY

J. W. Hermetet.....Chairman
John A. Wolfer.....Secretary

Tuesday Afternoon, May 21, 1935

Parlor A—Florentine

Joint Session with Section on Radiology.

A.—BONE TUMORS

2:30—"Radiological Differentiations of Bone Tumors and Bone Infections."—Edward L. Jenkinson, Chicago.

Dealing with the radiologic and pathologic aspect of bone tumors showing the differential points between the benign and malignant by a series of lantern slides.

2:50—"The Surgery of Bone Tumors."—D. B. Phemister, Chicago.

The indications for operative and irradiation therapy will be discussed for both benign and malignant tumors. Osteomas, cartilaginous exostoses and chondromas have been influenced by roentgen therapy and it may be used in cases where the lesion is small or when complete excision is impossible. The relative sensitivity of fibro-sarcoma, chondro-sarcoma, round cell sarcoma, and osteogenic sarcoma to irradiation will be discussed, as well as their tendencies to metastasize. Operative treatment, when the lesion is accessible, still holds first place in the treatment of bone sarcoma.

3:10—Case Report on Bone Tumors—"Ewing Tumors."—Gideon Hoffman, Kewanee.

3:30—"Report of a Case of Bone Tumor."—Henry W. Grote, Bloomington.

Discussion of the etiology with reference to the histological processes following trauma resulting in reduction of density—cellular activity causing local growth and loss of lime salts. Response to Roentgen Therapy in this particular case and end results—General consideration.

Discussion opened by Beveridge Moore, Chicago and Fred H. Decker, Peoria.

B.—SPINAL INJURIES

3:50—"Radiological Study of Spinal Injuries."—Roswell T. Pettif, Ottawa.

The paper deals with the investigation of fractures of the transverse processes of the lumbar vertebra due to muscular exertion.

4:10—"The Surgical Management of Spinal Injuries."—Sidney H. Easton, Peoria.

Fractures of the spine are divided into fractures of the cervical region and of the lumbo dorsal region. The treatment depends largely on the presence or absence of cord involvement and on the location and mechanism of the fracture. Conservative measures are advisable and operation seldom indicated. Indications for operations both in the early and late cases, after treatment, and end results are discussed.

- 4:30—"Roentgen Aspects of Spinal Injuries, With Some Case Reports."—James T. Case, Chicago.

The interpretation of spinal injuries is sometime difficult and often of great importance, not only for the recognition of the injury and its management, but also from the medico-legal standpoint. Anomalies must be appreciated and borne in mind in connection with the interpretation of spinal roentgenograms. Special technic is necessary for certain segments of the spine.

- 4:50—"The Treatment of Vertebral Fracture With Secondary Paralysis."—Emil Hauser, Chicago.

Report of a case of fracture dislocation of the cervical vertebrae. Unrecognized fracture with marked dislocation, which later developed a myelitis, causing a paralysis in the upper and lower limbs. Treated by hyperextension with complete recovery of the paralysis. Patient well for two years.

Similar cases cited in discussion to show that the late developing paralytic myelitis can be cured by means of hyperextension, some with and some without spinal fusion. (Slides.)

Discussion opened by Fremont Chandler, Chicago; and E. L. Jenkinson, Chicago.

Wednesday Morning, May 22, 1935

Parlor A—Florentine

- 8:30—"Intermittent Gastric Obstruction Following Cholecystectomy."—Clifford U. Collins, Peoria.

Sometimes the pyloric end of the stomach will become firmly attached to the liver following a cholecystectomy. This impairs the motor function of the stomach and will at times produce symptoms of obstruction at the pyloric end of the stomach.

Two illustrative cases are reported and a method described to prevent this complication.

Discussion opened by John A. Wolfer, Chicago.

- 9:00—"Hepatic Changes in Thyrotoxicosis."—J. M. Mora, Chicago.

Interesting evidence has accumulated to demonstrate that hepatic changes appear to be an integral part of the syndrom of thyrotoxicosis. This can be demonstrated clinically by the occurrence of icterus; physiologically, by the increasing evidence of altered hepatic function; experimentally, by the evidence of hepatic dysfunction following administration of thyroid substance and thyroxin; and morphologically by structural changes in the liver, varying in the acute stages from widespread degenerative, fatty and necrotizing processes to the chronic lesion in which the changes are interlobular, irregularly distributed, involving the peripheral portions of the lobule and showing relatively more fibrosis and lymphocytic infiltration than

bile duct proliferation. To this lesion the term chronic patchy parenchymatous interlobular hepatitis has been applied.

Discussion opened by Arnold Jackson, Madison, Wisconsin.

- 9:30—"The Poor Gallbladder Risk."—Edward S. Murphy,* Dixon.

(Paper to be read by David Murphy.)

Discussion opened by Lathan A. Crandall, Jr., Chicago.

*Deceased.

- 10:00—"Multiple Liver Abscesses."—R. A. Tearnan, Decatur.

When one considers that Liver Abscesses are more or less common, it is very essential that we know something of the pathology of these cases. Especially is this so with a surgeon, as most Liver Abscesses require surgical intervention. Liver Abscesses may be present with little or no symptoms and when the etiology is obscure the diagnosis is sometimes very difficult. It is with this idea in mind that I wish to present two cases of Multiple Liver Abscesses. Both cases present vague or indefinite symptoms and in which the etiology could not be determined.

Discussion opened by J. R. Buchbinder, Chicago.

- 10:30—"Operative Technique for Cryptorchidism, Unilateral and Bilateral."—With Motion Picture Demonstration.—Charles M. McKenna, Chicago.

A short review of the literature. The importance of the subject being divided into two parts, namely: The Operative Technique and the Embryology and the Physiology, with particular attention on Fertility and Sterility, as it relates to the Testicle. The Thermodynamic Value of the Scrotum, with case reports.

Discussion opened by J. E. Bellas, Peoria.

Wednesday Afternoon, May 22, 1935

Parlor A—Florentine

- 2:30—"The Present Status of Sympathetomies."—G. de Takats, Chicago.

Evolution of the surgery of the sympathetics. Brief review of the surgical anatomy of the sympathetics, particularly in regard to surgical approach. Surgical physiology of the sympathetics, particularly immediate and late effects of transection on vascular tonus, sweating, gastric and intestinal motility and secretion, on visceral pain, on muscle metabolism. Indications and contraindications for section of the cervical, dorsal, lumbar and presacral sympathetic chain. Effects of splanchnic section on diabetes, hypertension and visceral pain. Summary of illustrative case reports. Outlook for future progress.

Discussion opened by S. E. Munson, Springfield.

3:00—"The Diagnosis of Acute Mesenteric Lymphadenitis."—E. P. Coleman, Canton.

Acute Mesenteric Lymphadenitis is more frequent than is commonly believed. It is one of the common causes of abdominal pain in children and is frequently overlooked, even at the time of operation. A review of a number of personal cases indicates that it is a condition which should be considered in all cases of abdominal pain in children and young adults, but it seems there is no exact method of diagnosis at the present time. As the most common condition resembling it is appendicitis the conclusions of the author are that in any doubtful case, the possibility of a Lymphadenitis being present should not influence the doctor against appendectomy. That at the time of doing an appendectomy, these glands should be looked for in order to furnish aid as to the prognosis of the case and to influence the accuracy of abdominal diagnosis.

Discussion opened by Julius H. Hess, Chicago.

3:30—"Visceroptosis—Glenard's Disease."—J. C. Thomas Rogers, Urbana.

Visceroptosis (splanchnoptosis, Glenard's disease) is defined and described in a general way. The conditions of hepatoptosis and coloptosis are discussed in greater detail. The feature of the paper lies in the case report (with lantern slides) of the fixation of the mid-portion of an elongated transverse colon between the dome of the diaphragm and a markedly ptotic liver. An especially satisfactory result followed the operative repair, the technique of which is demonstrated.

Discussion opened by E. M. Miller, Chicago.

4:00—"What Shall We Do With the Unhealthy Cervix?"—George H. Gardner, Chicago.

All of us who examine women are continuously confronted with lesions of the cervix, some causing no symptoms, others definitely responsible for a leucorrheal discharge, and still a third group in women who are bleeding.

Much is being written these days about the advisability of regular pelvic examinations for women who have had children or have had operations on the cervix. These examinations, theoretically, will reveal many cancers of the cervix in an early stage when they are amenable to treatment. The Schiller iodine test and the colposcope are helpful adjuncts in the gynecologists' diagnostic procedures. A careful history plus accurate examination will permit one in most instances to make an accurate diagnosis without resorting to biopsy. Frequent excision of tissue for diagnosis is not to be recommended. Many cervixes can be greatly improved by cautery treatments, others should be amputated and some need only be kept under observation.

Discussion opened by F. L. Heinemeyer, Rockford.

4:30—"Congenital Absence of Left Tube and Ovary."—C. Paul White, Kewanee.

Congenital absence of left tube and ovary is exceed-

ingly rare indeed. Congenital malformation, however, is more frequently found, in peritoneal folds about the uterus, inguinal rings and most any place in the pelvic cavity. The diagnosis is practically never made in the absence of other congenital deformities except at the operating or post mortem table.

Discussion opened by George H. Gardner, Chicago.

5:00—"The Treatment of Disturbances of the Female Urethra."—Leander W. Riba, Chicago.

Because of the change in the construction of urological instruments in the past few years, many lesions of the posterior urethra in the male and female have been found and described by many authors. Straight urethral instruments are necessary for their proper diagnosis and treatment. In this paper a resume of the surgical treatment is attempted, illustrating the ease with which some of these lesions may be corrected. Such lesions as: small meatus, cysts, infected pockets, polyps, granulations, strictures, and urethral diverticula. The indications for electro-resection of the female bladder neck are also discussed and illustrated.

Discussion opened by Henry R. Searle, Rockford.

Thursday Morning, May 23, 1935
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Summary and conclusions.

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SECTION ON EYE, EAR, NOSE AND THROAT

Oscar B. Nugent.....Chairman
Watson W. Gailey.....Secretary

Tuesday Morning, May 21, 1935

Sun Parlor Grand Ball Room

11:00—"Bronchoscopy in Lung Disease."—Charles D. Sneller, Peoria.

The value of the bronchoscopic removal of foreign bodies from the bronchi is fairly well recognized by general practitioners and internists, particularly in the larger cities of the state. On the other hand, the value of bronchoscopy as an aid in the diagnosis of lung disease and its value in treatment, have barely been recognized. It is our duty as laryngologists to incite the closer cooperation of the general practitioner, internist and roentgenologist in the value of this special procedure in not only foreign body cases but especially in diagnosis and treatment of lung diseases.

Discussion opened by Harold Watkins, Bloomington.

11:20—"Chronic Glaucoma."—Charles F. Yerger, Chicago.

The insidious onset of simple glaucoma is the cause of many of these cases not being recognized until it is too late to do much if any good, therefore a plea for an early diagnosis and the institution of the proper treatment is made.

Discussion opened by Michael Goldenburg, Chicago.

11:40—"Further Report on the Treatment of Strabismus with Orthoptic Exercises. A Resume of Nearly Three Hundred Cases. Conclusions."—Jacob L. Bressler, Chicago.

An analysis of the work accomplished in the orthoptic clinic at the Illinois Eye and Ear Infirmary since its inception one and a half years ago. A working routine is described with details of the methods employed at our clinic. Other methods of orthoptic treatment are included with a discussion of their advantages and disadvantages.

Discussion opened by Leo L. Mayer, Chicago.

Tuesday Afternoon, May 21, 1935

Sun Parlor Grand Ball Room

SYMPOSIUM ON CATARACT

2:30—Introductory Remarks.—Oscar B. Nugent, Chicago.

2:45—"What the Slit Lamp Tells Us."—Robert Von Der Heydt, Chicago.

3:00—"Preparation For Operation and Anesthesia."—Walter Stevenson, Quincy.

- 3:15—"Incision, Iridotomy, Iridectomy." — Frank Brodrick, Sterling.
- 3:30—"The Barraquer and Smith Technic of Lens Extraction."—W. A. Fisher, Chicago.
- 3:45—"The Elsnig Technic of Lens Extraction."—Harry Gradle, Chicago.
- 4:00—"Extracapsular Extraction of Lens."—Harry Woodruff, Joliet.
- 4:15—"Prevention and Treatment of Complications in Cataract Operations."—Sanford Gifford, Chicago.
- 4:30—"Phacogenetica Endophthalmitis."—Beulah Cushman, Chicago.
One-half hour open for general discussion.
- 6:30-8:30—Section Banquet (informal).
Miss Audrey Hayden will speak on "The Seeing Eye." Her talk will be illustrated by moving pictures.

Wednesday Morning, May 22, 1935

Sun Parlor Grand Ball Room

- 9:00—"Selective Treatment of Malignancy About the Head and Neck."—T. C. Gallo way, Evanston.

Cancer about the head is not to be treated by any invariable method but for each type, grade and location there is a best treatment. An attempt is made to define the criteria for selecting that treatment.

Teamwork is required between the clinician, radio-therapist and pathologist for the best results. The advantages and disadvantages are discussed of surgery, electrosurgery, x-ray and radium and the special indication for each.

Factors that influence radiosensitivity are given. The value of histological examination in determining radiosensitivity is weighed in relation to selection of treatment. Also are discussed the clinical appearance, course, and location as determining this selection. The complementary use of all measures for cure is emphasized.

The treatment for various regions is outlined, including the skin, nose, sinuses, mouth, tongue, tonsil, pharynx and larynx.

Discussion opened by A. James Larkin and James T. Case, Chicago.

- 9:20—"Tracheotomy—Indications, Technic and Post-operative Management." — Roland D. Russell, Chicago.

Tracheotomy should not be too lightly undertaken or too long delayed. The indications are: Spasmodic forms of stenosis; impacted foreign body; laryngeal edema; diphtheria because of edema or membrane in the inflammatory stage, or cicatrices, or paralysis la-

ter; typhoid perichondritis or cicatrices; syphilis; tuberculosis; neoplasma; bilateral laryngeal paralysis; cicatricial stenosis due to high tracheotomy or laryngotomy.

Low tracheotomy is the operation of choice because there is less hemorrhage, the tracheal fistula is further from the site of the lesion, the trachea is wider below, and there is less danger of cicatricial stenosis as a sequel to operation; and low tracheotomy is less conspicuous.

Morphine is contraindicated for the preoperative preparation. The operation is done under local anesthesia.

The writer advocates a low horizontal incision through the skin and fascia down to the muscles, then blunt dissection to the trachea which is incised vertically low down. A minimum of dissection is done to reach the trachea. The advantages of the method are: Very little space is opened for infection, the wound usually heals by primary union, very little bleeding is caused, and method can be used in practically all cases.

A special nurse or trained attendant constantly present is essential. A suction machine equipped with catheters should be ready at the bedside for instant use in aspirating tracheal secretions. The inner tube should be frequently and thoroughly cleaned.

Discussion opened by John Delph, Chicago.

- 9:40—"Management of Myopia in Children." —G. Henry Mundt, Chicago.

The importance of determination of vision in the children of myopic parents. The importance of frequent refractions, constant wearing of lenses, restriction of use of eyes for close work.

Discussion opened by Joseph F. Duane, Peoria.

- 10:00—"Tonsillectomy in Pulmonary Tuberculosis."—Stuart Broadwell, Springfield.

A resume of one hundred operations on tubercular patients. A few contra-indications to this operation are outlined.

- 10:20—"The Favorable Effect of Local Quinine Therapy on Some Diseases of the Conjunctiva and Cornea."—Elias Selinger, Chicago.

Besides its local action as a bactericide, astringent and mild anesthetic, quinine penetrates deeply into the tissues and, because of its depressing effect on the nutrition of the protoplasm, destroys cellular elements. This last property explains the favorable action of quinine in the treatment of trachoma, interstitial keratitis and other conditions characterized by the infiltration of cellular elements into the cornea and conjunctiva. Favorable results have also been obtained in old corneal opacities, probably as a result of the absorption of some of the elements making up the corneal scars.

Discussion opened by Sanford Gifford, Chicago.

- 10:40—"Influence of Ionization on Vasomotor

Rhinitis; Clinical and Experimental Studies."—A. R. Hollender; Meyer Gorin, Chicago.

What is ionization? Physical principles, physiological and clinical effects. Apparatus; technic and its simplification. Histo-pathological studies. Further data on laboratory and experimental investigation. Conclusions based on more than ten years' experience with intranasal ionization in various nasal affections.

Discussion opened by Francis L. Lederer, Chicago; Hanby L. Ford, Champaign.

Wednesday Afternoon, May 22, 1935

Sun Parlor Grand Ballroom

2:30—"Surgical Management of Glaucoma."—Samuel Meyer, Chicago.

The surgery of glaucoma divides itself into three types of operations, namely:

1. The classical iridectomy or Von Graefe Operation.

In this type of operation the endeavor is made to restore, so far as is possible, the normal channels of drainage of the aqueous. In other words, an effort is made to open up the chamber-angle, and allow the aqueous to filter out.

2. Cyclo-dialysis.

This type of operation opens up new intra-ocular sources of drainage.

3. The Elliot Trephine, LaGrange Iridosclerotomy and Iridencleisis.

The foregoing methods provide extra-ocular sources of drainage, namely, by the maintenance of a fistula in the conjunctiva.

There is no one operation that will fit any and all cases. The majority of bad results that are reported are due to the fact that the surgeon is endeavoring to solve all glaucoma problems with one type of operation.

Discussion opened by Harry Gradle, Chicago.

2:50—"Medical Adjuvants in the Management of Glaucoma."—James E. Lebensohn, Chicago.

Proper medical management in glaucoma not only may assure us a more uneventful operative recovery in those cases where surgery is indicated, but not infrequently is our sole resource in patients we may not, dare not, or can not operate. In the pre-operative preparation of acute glaucoma, morphine, dehydration, and miotics are imperatively indicated. Adrenalin therapy is of value in chronic simple glaucoma only, and absolutely contraindicated for all other forms. In iritis glaucomatosa, the tension is most safely lowered by the maintenance of dehydration, and the continued use of atropin and injections of foreign protein. Chronic uveitis with hypertension is a special problem. In absolute glaucoma, enucleation or optico-ciliary neurectomy is recommended but alcohol injection is at our disposal for non-operable cases.

Discussion opened by Harry W. Woodruff, Joliet.

3:10—"A Survey of the Present Status of Electro-Coagulation of Tonsils."—Louis Savitt, Chicago.

The author defines and indicates the various types of currents employed in electro coagulation, so as to avoid confusion in the minds of those contemplating the adoption and addition of this technic to their armamentarium.

A comprehensive and detailed review of the current literature is included in this presentation along with a composite view of the opinions of those oto-laryngologists who have, after due consideration and earnest, conscientious trial, either accepted or rejected this technic as now universally used.

Included in this paper is the author's own personal experience of six years, during which time his cases have been periodically observed, so as to tabulate his end results and presenting his own conclusions.

Discussion opened by George T. Jordan, Chicago.

3:30—"Cause for Removal of the Eye."—Leo L. Mayer, Chicago.

During the year from July 1, 1933, to July 1, 1934, approximately 150 eyes were removed at the Illinois Eye and Ear Infirmary in Chicago. The primary and secondary causes of necessity for removal are analyzed. Anophthalmos often is a precursor of complete blindness. An attempt is made to correlate such incidence with the causes for complete blindness. A relative estimate of prognosis in injury, glaucoma and operations on the eye is made available by this study. Pathological study of the removed globes is used as a checkup of original and secondary diagnosis.

Discussion opened by Edw. C. Spitze, East St. Louis; Georgiana Theobald, Oak Park.

3:50—"Radiathermy (Ultra Short Wave Diathermy) in Acute Suppurative and Non-suppurative Infections About the Head and Neck."—M. H. Cottle, Chicago.

This work from the department of Physical Therapy and with the cooperation of Ear, Nose & Throat Department, Cook County Hospital, Chicago.

Brief presentation of the physiological and biological effects of this form of therapy; differentiation from other forms of Diathermy; comparison with x-ray.

Summary of case reports illustrated by lantern slides.

Technic of application—Contraindications—and Limitations.

Discussion opened by Disraeli Kobak, Chicago; Thomas Galloway, Evanston.

4:10—"Operative Management of Ozena."—S. M. Morwitz, Chicago.

A—Types of Clinical Atrophic Rhinitis:

1. Primary with Ozena.

2. Secondary to sinusitis.

B—Ozena Cases Analogous to Otosclerosis:

1. Affects young adults, especially the female.
2. Become social outcasts.
3. Have associated psychogenic problems, Ozena cases particularly on account of Malodor.

C—Principles Underlying Surgical Procedures:

1. Relevant etiologic and pathologic factors.
2. Ozena never seen in narrow nose, only in wide nasal chambers.
3. Degree of Ozena is in direct ratio to degree in width of nasal cavities.

D—Survey of Conservative Surgical Measures Employed:

1. Currettement of entire nasal chamber.
2. Blockage and extirpation of sphenopalatine ganglion.
3. Periarterial sympathectomy on large vessels of neck.
4. Removal of turbinates.
5. Intranasal obturators and sponges.
6. Implantation of autoplasmic and hetero-plastic substances.
7. Ionization.
8. Radium and X-ray.

E—Recent Radical Operative Technic:

1. Lantenschlagers.
2. Halles.
3. Wachsberger's Modification.

(a) Adopted by the writer in a series of cases at the University of Illinois Research Hospital.

(b) Detailed description of operation; lantern slides.

F—Summary on Value of This Type of Surgical Therapy.

Discussion opened by H. L. Pollock, Chicago.

Thursday Morning, May 23, 1935

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organs such as teeth, salivary glands, liver and pancreas. Many reflex symptoms may exist, consequently it is often desirable to make a comprehensive examination. No examination is complete without a combined fluoroscopic and film examination. There is a great tendency to cut down on the number of films, this is a great mistake, because certain findings are not fluoroscopically conclusive. These examinations are time consuming and frequently a re-examination is necessary. From the economic viewpoint these examinations involve quite an over-head and under the present day conditions considerable indifferent examinations are performed wilfully, with the object of reducing the over-head with the consequences that the highest traditions of medicine are destroyed because of inadequate service. It, therefore, is quite necessary that the profession senses these trends.

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Causes of circulatory and respiratory failure and death in intestinal obstruction—Anhydremia, Dechlorination, Alkalosis, rise of blood-urea and non-protein-nitrogen are evaluated.

The Barium enema and x-ray as a diagnostic aid; its value, limitations and dangers.

Emphasis on early decompression in intestinal obstruction; operative and non-operative procedures.

General principles of treatment; lowering mortality by two-step operative procedures; exceptions. Importance of individualization in selecting the type of surgical procedure.

Summary and conclusions.

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Two considerations are involved in the hygiene of reading—avoidance of any deleterious influence on eyesight, and maintenance of the highest reading efficiency. The latter requires not only that the eye as an optical organ should function perfectly, but that external factors—illumination, size, contrast, and period of exposure—have optimal values, and that centrally

the cerebral processes involved be developed and trained. An analysis is made of the physiology of reading, and of the medical, physical and psychological factors that make reading difficult.

Discussion opened by George J. Mehr, Chicago.
11:50—"Conservation of Hearing."—Frank Novak, Jr., Chicago.

SECTION OF PUBLIC HEALTH AND HYGIENE

Lloyd ArnoldChairman
W. M. Talbert.....Secretary

Tuesday Afternoon, May 21, 1935

SOUTH BALL ROOM

Joint Session with Section on Medicine.

SYMPOSIUM ON OBSCURE FEVERS

2:45—"Symptoms and Diagnosis."—James G. Carr, Chicago.

A discussion of "Obscure Fever" demands a definition of the term. Two groups are presented. The first includes the cases of fever, sub-febrile in type, which run a prolonged course. Often a satisfactory diagnosis is never made. The symptoms are mild in character, suggestive of a mild infection. An acceptable diagnosis is frequently impossible.

The second group includes cases of greater severity with symptoms characteristic of infection. The obscurity here lies in our inability to determine the nature of the infection promptly. Few of these cases go undiagnosed for more than three or four weeks. The general principles of diagnosis are also discussed.

3:15—"Epidemiology."—G. Koehler, Springfield.

Definitions: Comprehensiveness of the Subject. Significance of fever in epidemiology. (a) In the early recognition of such common diseases as measles, whooping cough and typhoid fever. (b) As an aid in the recognition of tularemia and undulant fever. (c) Its value in the recognition of epidemic cerebrospinal meningitis and encephalitis in outbreaks of these diseases. (d) Of doubtful value in differentiating influenza from non-specific acute respiratory infections. (e) As an index of activity or infectivity of tuberculosis.

While the recognition and consideration of fever is valuable in the diagnosis of the aforesaid epidemic diseases and thus an aid in the epidemiological work, fever alone as a symptom can never be the basis of such work.

Discussion opened by John J. McShane, Chief of the Division of Contagious Diseases, Illinois State Department of Public Health, Springfield.

3:45—"Laboratory Aids in the Diagnosis of Fevers of Obscure Origin."—Mr. H. E. McDaniels, Chicago.

In the diagnosis of obscure fevers of infectious origin, valuable evidence is often obtained from laboratory tests. This paper discusses the available bacteriological and serological procedures for the detection of the infectious agents most frequently involved in such fevers. Consideration is given to the interpretation and diagnostic importance of various laboratory findings. The subject is treated from the point of view of a public health laboratory and the tests offered by such a laboratory.

Discussion opened by Cecil Jack, Decatur.

4:15—"Treatment."—Clarence H. Boswell; Anfin Egdahl, Rockford.

5:00—Discussion.

Wednesday Morning, May 22, 1935

Room 303

9:00—"The Bacillus of Calmette and Guérin (B. C. G.) in the Immunization Against Tuberculosis."—Sol Roy Rosenthal, Chicago.

A brief history of the bacillus of Calmette and Guérin (B.C.G.), beginning with its first isolation in 1908 and its artificial cultivation through some 500 passages is presented. The avirulence and accompanying immunity is traced through the ordinary laboratory animals—cows—monkeys and chimpanzees. Finally, the harmlessness and protective properties against tuberculosis in well over one million infants throughout the world is emphasized. From the literature and from the author's own work, evidence is given to show that the present strain of B.C.G. cannot be dissociated; that a transient variation in the cultural morphology does occur but the latter is non-virulent for guinea pigs and rabbits; that a positive tuberculin test does result in all animals vaccinated by the subcutaneous route and that in over 200 animals studied there was no evidence of a progressive tuberculosis.

Discussion opened by Lloyd Arnold, Chicago.

9:25—"The School Teacher as a Source of Tuberculosis Infection—Report of an X-ray Study."—D. O. N. Lindberg, Decatur.

An x-ray film study was made of the school teachers, Macon County, Illinois. Six hundred eighty-seven (687) were filmed, of which 6, or 0.9% were found to be actively tuberculous. The findings, of course, indicate that the school teacher has no more tuberculosis than the average adult. Her infection menace to the school child rests upon the fact that, next only to the family, she provides greatest opportunity for close, prolonged contact. Requiring the teacher to provide a health certificate, to include chest films, would serve to remove this reservoir of infection.

Discussion opened by J. A. Myers, Minneapolis, Minnesota.

9:50—"Tubercle Bacilli on the Lips of Patients with Pulmonary Tuberculosis."—Lars Gulbrandsen and Robert Keller, Chicago.

The presence of tubercle bacilli on the lips of patients with pulmonary tuberculosis was investigated by taking swabs of the lips at 15 minute intervals over periods of two hours on each patient. Records were kept of coughing and expectoration. Each swab was immediately shaken in 5 cc. of sterile saline, and injected subcutaneously into guinea pigs. After 6 weeks, these pigs were sacrificed and examined for evidences of tuberculosis. It was found that each patient so examined had tubercle bacilli on the lips—in one instance, material taken as late as 1 hour and 40 minutes after expectoration producing tuberculosis in the animal. Examination of the nasal orifices, using the same technique, failed to demonstrate tubercle bacilli. The authors conclude that tubercle bacilli on the lips in patients with pulmonary tuberculosis must be considered in the epidemiology of this disease.

Discussion opened by D. O. N. Lindberg, Decatur.

10:15—"Meningococcus Meningitis, Importance of Intravenous Therapy."—Archibald Hoyne, Chicago.

The paper contains a discussion of meningococcus infection for which the general term "meningococcia" is suggested. A newer classification of the disease based on clinical symptoms is presented and the significance of these symptoms in determining the method of treatment is described. Great importance is attached to intravenous administration of serum and the reasons for this mode of treatment explained. A new serum is referred to. There is a review of 233 meningococcus cases treated in the Municipal Contagious Disease Hospital. Tables illustrative of cases, deaths, and sex in various age groups are included.

Discussion opened by Joseph T. O'Neill, Otawa.

10:40—"Passive Immunity in Infants and Their Response to Diphtheria Toxoid."—Joseph Greengard, Chicago.

Preliminary Schick tests were done on all infants and vaccination with diphtheria toxoid carried out in both the positive and negative reactors. The negative reactors, i.e., those who still retained their passive immunity, demonstrated a positive Schick test in two-thirds of the cases, the course of their passive immunity corresponding closely to that of infants who have not been vaccinated. The positive reactors, control series, turned negative and remained so in 88% of the cases. We may, therefore, conclude that passive immunity in infants interferes with the development of antitoxin in response to vaccination with diphtheria toxoid. Such vaccination, therefore, should not be done in young age groups without preliminary Schick testing.

Discussion opened by Maurice L. Blatt; I. Harrison Tumpeer, Chicago.

Wednesday Afternoon, May 22, 1935

Room 303

2:30—"The Treatment of Early Syphilis."—S. J. Zakon and Maurice Dorne, Chicago.

Historical review of the evolution of the modern treatment. Abortive, chronic intermittent, intensive, irregular, and continuous methods of treatment defined and discussed. Superiority of continuous method stressed and advocated. Drugs used, their indications, limitations, and dosage. The "golden opportunity" in early syphilis. What is meant by early syphilis? How long to treat? What is adequate treatment? When should treatment cease? Values of Dark field, blood serology, spinal fluid findings in diagnosis, prognosis and guides as to cure.

Discussion opened by A. W. Stillians, Chicago.

2:55—"Modern Principles in the Treatment of Early Syphilis."—H. J. Burstein, Decatur.

Recent statistics of results in the treatment of syphilis have proven that continuous treatment is the method of choice. These figures and outline of treatment, with a discussion of the various drugs show necessity for early adequate treatment. Diagnosis during primary seronegative stage should be constantly emphasized.

Discussion opened by Marcus R. Caro, Chicago.

3:20—"The State of Health in Illinois."—Frank J. Jirka, Springfield.

3:45—"Past, Present and Future Position of Public Health and Preventive Medicine in the Curricula of Medical Colleges."—D. J. Davis, Chicago.

4:15—"Epidemic Pleurodynia in Illinois."—Tom Kirkwood, Lawrenceville, and C. G. Stoll, Sumner.

This is the first recorded epidemic of this disease west of the Appalachian Mountains. It is an acute infectious disease, occurring in epidemics during the summer months, characterized by the sudden appearance of agonizing pain in the lower third of the anterior thoracic wall on one or both sides, and sometimes by pain in the epigastrium. There is a rapid rise in temperature and marked respiratory embarrassment. Usually all symptoms disappear within twenty-four hours, but may return after one or two days. The severe initial pain may resemble that seen in acute abdominal surgical conditions and has led to needless operations.

Discussion opened by J. J. McShane, Springfield.

4:35—"Typhoid and Mosquitoes."—J. Howard Beard and John R. Cain, Urbana.

The widespread erroneous belief that the mosquito

conveys typhoid fever is symbolic of the lack of instruction in hygiene, the inadequate preparation of many teaching it, and is indicative of the fact that education has not placed sufficient emphasis on a subject essential to successful living in a highly complex civilization.

Discussion opened by Andy Hall, Mt. Vernon.

Thursday Morning, May 23, 1935

9:00—"Vital Statistics as an Indicator of Accuracy in Diagnosis."—G. Howard Gowen, Chicago.

The frequency of the reporting of unspecified sudden death, unspecified pneumonia, and unspecified peritonitis was studied for the years 1914 and 1929 for the twenty-five registration states existing in 1914. A similar study was made of Illinois for the years 1918 and 1929. The results are interpreted in terms of accuracy of diagnosis of the cause of death. It was found that there was an average decrease in the reporting of unspecified peritonitis and unspecified pneumonia, but an increase in the reporting of unspecified sudden death.

Discussion opened by J. J. McShane, Springfield.

9:25—"Medical Survey in Illinois."—E. A. Kominik, Chicago.

A ten-year survey beginning 1924 and ended 1933 of the birth and death rates of the counties of Illinois. The ten years were divided into two five year periods and the rates then averaged. The difference of the averages of these two periods, represents the average increase or decrease in the last five year period ended 1933, of the birth and death rates over their respective previous five-year average. The results are described in the paper.

The survey shows an increase in birth rate in 10 counties and a decrease in 92 counties. There was an increase in death rate in 64 counties in the last 5-year period over the first 5 years and a decrease in 37 counties. One county maintained the same rate in both periods.

Discussion opened by Mr. B. K. Richardson, Springfield.

9:50—"Artificially Induced Malaria as a Public Health Hazard."—H. J. Shaughnessy, Springfield.

An unusual number of positive laboratory tests for malaria directed the attention of the Illinois Department of Public Health to the cause of an apparent outbreak of that disease in one of the state hospitals. Investigation revealed that a number of previously inoculated paretics that had been treated with quinine were still harboring malaria parasites. Anopheles mosquitoes were found breeding within flying distance of the hospital. The conclusion is drawn that the out-

break was possibly due to the spread of artificially induced malaria by mosquitoes. Measures for the prevention of this possibility are suggested.

Discussion opened by G. Howard Gowen, Chicago.

10:15—"Epidemic Encephalitis (St. Louis type) in Illinois during 1932, 1933 and 1934."—Winston Tucker, Springfield.

An outbreak of 27 cases of epidemic encephalitis occurred in Paris, Edgar County, in August and September, 1932, with a fatality rate of 33 per cent. From July 1 to December 31, 1933, 202 cases were reported, most of which occurred in the counties nearest St. Louis, with a fatality rate of 37 percent. During the same period in 1934, 268 cases were reported over a widely scattered area in Illinois, with a fatality rate of 20 per cent. Epidemic encephalitis is assuming increasing importance each year, and judging from past experience, physicians should be on the lookout for cases during the summer of 1935. The disease will be discussed from a clinical and Public Health viewpoint in this paper.

Discussion opened by Don C. Sutton, Chicago.
10:40—"Blood Grouping Tests in the Medico-legal Determination of Non-paternity."—C. W. Muehlberger, Chicago.

Although European courts have accepted medical testimony regarding the inheritance of blood group characteristics for a number of years, American courts have been hesitant in admitting such tests to prove non-paternity. With the latest additions of the three agglutinin factors (M, N and MN) by Landsteiner, a falsely accused man has about one chance in three of proving non-paternity. Decisions of various courts ruling upon the admissibility of blood grouping tests in this country are discussed. Blood grouping tests may be of value in solving medicolegal problems other than the determination of non-paternity.

Discussion opened by C. Woodward, Chicago.

SECTION ON RADIOLOGY

F. FlinnChairman
George M. Landau.....Secretary

Tuesday Afternoon, May 21, 1935

Parlor A—Florentine

Joint Session with Section on Surgery.

A.—BONE TUMORS

2:30—"Radiological Differentiations of Bone Tumors and Bone Infections."—Edward L. Jenkinson, Chicago.

Dealing with the radiologic and pathologic aspect of bone tumors showing the differential points between the benign and malignant by a series of lantern slides.

2:50—"The Surgery of Bone Tumors."—Dallas B. Phemister, Chicago.

The indications for operative and irradiation therapy will be discussed for both benign and malignant tumors. Osteomas, cartilaginous exostoses and chondromas have been influenced by roentgen therapy and it may be used in cases where the lesion is small or when complete excision is impossible. The relative sensitivity of fibro-sarcoma, chondro-sarcoma, round cell sarcoma, and osteogenic sarcoma to irradiation will be discussed, as well as their tendencies to metastasize. Operative treatment, when the lesion is accessible, still holds first place in the treatment of bone sarcoma.

3:10—Case Report on Bone Tumors—"Ewing Tumors."—Gideon Hoffman, Kewanee.

3:30—"Report of a Case of Bone Tumor."—Henry W. Grote, Bloomington.

Discussion of the etiology with reference to the histological processes following trauma resulting in reduction of density—cellular activity causing local growth and loss of lime salts. Response to Roentgen Therapy in this particular case and end results—General consideration.

Discussion opened by Beveridge Moore, Chicago; Fred H. Decker, Peoria.

B.—SPINAL INJURIES

3:50—"Radiological Study of Spinal Injuries."—Roswell T. Pettit, Ottawa,

The paper deals with the investigation of fractures of the transverse processes of the lumbar vertebra due to muscular exertion.

4:10—"The Surgical Management of Spinal Injuries."—Sidney H. Easton, Peoria.

Fractures of the spine are divided into fractures of the cervical region and of the lumbo dorsal region. The treatment depends largely on the presence or absence of cord involvement and on the location and mechanism of the fracture. Conservative measures are advisable and operation seldom indicated. Indications for operations both in the early and late cases, after treatment, and end results are discussed.

4:30—"Roentgen Aspects of Spinal Injuries." With some Case Reports.—James T. Case, Chicago.

The interpretation of spinal injuries is sometime difficult and often of great importance, not only for the recognition of the injury and its management, but also from the medico-legal standpoint. Anomalies must be appreciated and borne in mind in connection with the interpretation of spinal roentgenograms. Special technic is necessary for certain segments of the spine.

4:50—"The Treatment of Vertebrae Fracture with Secondary Paralysis."—Emil Hauser, Chicago.

Report of a case of fracture dislocation of the cervical vertebrae. Unrecognized fracture with marked dislocation, which later developed a myelitis, causing a paralysis in the upper and lower limbs. Treated by hyperextension with complete recovery of the paralysis. Patient well for two years.

Similar cases cited in discussion to show that the last developing paralytic myelitis can be cured by means of hyperextension, some with and some without spinal fusion. (Slides.)

Discussion opened by Fremont Chandler, Chicago; E. L. Jenkinson, Chicago.

Wednesday Morning, May 22, 1935

Junior Club Room

8:30—"An Experimental Study on the Pyloric Mechanism."—Cesare Gianturco, Urbana.

The author has studied the behavior of the pyloric sphincter in cats by visualizing to Roentgen Rays the gastric and duodenal walls by means of lead shot inserted under the serosa of the viscuses. When a barium meal was given it could be seen that food does not leave the stomach every time that the pylorus opens, but that a contemporaneous relaxation of both the pylorus and the duodenum is necessary.

Discussion opened by Fred H. Decker, Peoria.

9:00—"The Value of Intravenous Pyelogram as Illustrated by Some Interesting Cases."—A. E. Perley, Quincy.

A discussion of the value of intravenous pyelography, its technic and indications for its use. The slides will bear on the interpretations of these interpretations and those from retrograde pyelograms.

Discussion opened by George M. Landau, Chicago.

9:30—"Roentgen Study of Lesions of the Urinary Bladder."—Perry B. Goodwin, Peoria.

The synopsis will show evidences of the different pathological conditions in the bladder as revealed by the x-ray film. We will take up diverticuli, tumors, ruptures of the bladder and prostatic visualization; this will include the posterior urethra.

This method of visualization of the prostate will show the different sizes of the prostate and the principles by which we interpret our findings in both hypertrophies and malignancies. It will also show whether there are lateral, posterior or middle lobe involvements or whether all lobes are involved, and the manner of obtaining the information. This discussion will be illustrated with slides.

Discussion opened by H. J. Burstein, Decatur.

10:00—"Differentiation of Radio-Opaque Shadows in the Right Upper Quadrant."—Robert A. Arens, Chicago.

This paper will discuss the differential diagnosis between biliary calculi, renal calculi, calcified mesenteric glands, pigmented moles, and other extraneous shadows seen on the x-ray films, some of which at times may be difficult to differentiate without special technique.

Discussion opened by J. H. Finch, Champaign.
10:30—"The Use of Excretory Urography in Urological Diagnosis." — Norris J. Heckel, Chicago.

This paper includes a short history of the development of Excretory Urography, the major part of the discussion however is devoted to the use of this procedure not only in the diagnosis of diseases of the urinary system but also its use in the differential diagnosis between these diseases and those of adjacent structure. Comparison is made between this method and that of instrumental pyelography. The interpretation of the urogram from the standpoint of physiological alterations is discussed and about thirty-five slides illustrating various urinary tract diseases including traumatic lesions will be shown.

Discussion opened by David L. Jenkinson, Chicago.

12:00—Radiological Luncheon.

Wednesday Afternoon, May 22, 1935

Junior Club Room

2:30—"Massive Collapse."—Roe J. Maier, Chicago.

Massive collapse of the lung, or better, massive atelectasis is of very great importance because of its frequency of occurrence, its ease of treatment if recognized early and the seriousness of its sequellae. The condition is not one recently observed but described as early as 1844. It occurs post-operatively and following exposure or trauma even when the trauma is distant from the chest. It can usually be differentiated from other types of pathology involving the chest and its early and proper treatment produces rapid recovery and should result in no sequellae. Several cases are used as illustrations.

Discussion opened by F. Flinn, Decatur.

3:00—"The Roentgen Diagnosis of Intracranial Lesions."—A. Hartung and T. Wachowski, Chicago.

The Roentgen examination serves a double purpose in connection with intra-cranial lesions. Firstly, to determine their presence either by demonstrable changes in the lesions themselves or secondary changes associated with them, and secondly, to localize such lesions. Both objects may be accomplished simultaneously by plain film examinations in some cases, but in many others they must be supplemented by the use of ventriculography or encephalography to obtain the required information. This paper is intended to cover the subject in a general way.

Discussion opened by Eric Oldberg, Chicago.

3:30—"Roentgenology in Pediatrics; Importance in Diagnosis of Thoracic Lesions."
—John F. Carey, Joliet.

At present roentgen examination of the thorax is quite indispensable in the study of thoracic lesions in children. However, a diagnosis should be arrived at only upon proper correlation of the history, clinical and physical findings and other laboratory data.

Many roentgenologists do not have the opportunity of examining children, so much of their work being devoted to adults. The pediatricist's problems differ because the variation of the disease itself in the young and the difference in anatomy and clinical composition.

An attempt will be made to point out some of the common problems of diagnosis and the pitfalls when a proper correlation of clinical findings and roentgen evidence is not taken into consideration.

Discussion opened by John S. Bigler, Highland Park; Craig D. Butler, Oak Park.

4:00—"X-Rays in the Detection of Pathology in the Cervix, Corpus Uteri and Oviducts."—Benjamin H. Orndoff, Chicago.

With the aid of radio-opaque substances, it becomes possible to delineate and study the normal cervical canal and the cavity in the uterine body and oviducts.

Pathological variations of position, fixation, filling defects due to the different causes, and patency at any point can be studied in a manner unequaled by any other method.

Discussion opened by Robert A. Arens, Chicago.

4:30—"The Roentgen Treatment of Uterine Hemorrhage, Amenorrhea and Dysmenorrhea."—I. S. Trostler, Chicago.

Treatment of these gynecological conditions by Roentgen Rays is not new. Much has been accomplished since the earliest workers first reported their results. Menstrual disorders are frequently influenced by small doses of Roentgen Rays. How do these produce the results? Roentgen Rays NEVER stimulate. Always depress. Depress pain production and pituitary hormone output. Many cases relieved by irradiation of pituitary, alone.

Effects on uterine hemorrhage are three fold. Hemorrhage due to fibromyomata, how affected. Artificial menopause. Quotation from Martindale's report of 620 cases of artificial menopause. Abnormal menopause.

Summary and Conclusions. A caution regarding the administration of Roentgen therapy by lay technicians.

Discussion opened by Henry W. Grote, Bloomington.

5:00—"Art of Cancer Therapy."—E. G. C. Williams, Danville.

This is a comparison of methods and a contrast between wide destruction of tissue and sterilization of

cancerous tissues, with a discussion of the points that make cancer therapy an art rather than a craft.

Discussion opened by Benjamin H. Orndoff, Chicago.

Thursday Morning, May 23, 1935

South Ball Room

Joint Session with Sections on Medicine, Surgery, and Eye, Ear, Nose and Throat.

9:00—"Diseases of the Colon as a Source of Abdominal Pain."—L. C. Gatewood, Chicago.

The mechanism involved in production of pain in the colon. Characteristics of the pain. Variations in localization and reference. Simulation of other abdominal disorders. Diagnosis and differential diagnosis of conditions producing pain in the colon. Laboratory and x-ray findings. Management of the commoner types of colitis. Importance of functional nervous factors in this group of cases.

Discussion opened by Richard Herndon, Springfield.

9:40—"Roentgenology of the Alimentary Tract."—Maximilian J. Hubeny, Chicago.

Roentgenology of the alimentary tract is indispensable; the tract is about thirty feet long and has many anatomic and physiologic divisions and many accessory organs such as teeth, salivary glands, liver and pancreas. Many reflex symptoms may exist, consequently it is often desirable to make a comprehensive examination. No examination is complete without a combined fluoroscopic and film examination. There is a great tendency to cut down on the number of films, this is a great mistake, because certain findings are not fluoroscopically conclusive. These examinations are time consuming and frequently a re-examination is necessary. From the economic viewpoint these examinations involve quite an over-head and under the present day conditions considerable indifferent examinations are performed wilfully, with the object of reducing the over-head with the consequences that the highest traditions of medicine are destroyed because of inadequate service. It, therefore, is quite necessary that the profession senses these trends.

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Causes of circulatory and respiratory failure and death in intestinal obstruction—Anhydremia, Dechlorination, Alkalosis, rise of blood-urea and non-protein-nitrogen are evaluated.

The Barium enema and x-ray as a diagnostic aid; its value, limitations and dangers.

Emphasis on early decompression in intestinal obstruction; operative and non-operative procedures.

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Summary and conclusions.

Discussion opened by Carl E. Black, Jacksonville.

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Discussion opened by George J. Mehr, Chicago.

11:50—"Conservation of Hearing."—Frank Novak, Jr., Chicago.

RULES GOVERNING PRESENTATION OF PAPERS

All papers read by members shall be limited to twenty minutes and remarks in discussion to five minutes, floor privilege being allowed only once for the discussion of any one subject.

All papers read before the Society or any of its Sections shall become the property of the Society. Each paper shall be deposited with the Secretary of the Section when read and the presentation of a paper to the Illinois State Medical Society shall be considered tantamount to the assurance on the part of the writer that such paper has not already appeared and will not appear in medical print before it has been published in the Illinois Medical Journal.

A paper not heard in its scheduled turn shall be held subject to the call of the Chairman of the Section at the end of the regular session if time permits, or as an alternative at the end of the program.

All subjects shall be confined strictly to the subject in hand.

No paper shall appear in the printed transactions of the meeting unless read in full or in abstract.

(From the By-Laws of Illinois State Medical Society).

COMMERCIAL EXHIBITORS AT 1935 ANNUAL MEETING

W. B. Saunders Company, Philadelphia, Pennsylvania.

A. S. Aloe Company, St. Louis, Missouri.

Mead Johnson & Company, Evansville, Indiana.

Mellin's Food Company, Boston, Massachusetts.

Merck & Company, Rahway, New Jersey.

J. B. Lippincott Company, Philadelphia, Pennsylvania.

Sharp & Smith, Chicago.

V. Mueller & Company, Chicago.

Bankers Mutual Life Company, Freeport.

Medical Protective Company, Wheaton.

Kellogg Company, Battle Creek, Michigan.

Gerber Products Company, Freemont, Michigan.

Hynson, Westcott & Dunning, Baltimore, Maryland.

Horlick's Malted Milk Corporation, Racine, Wisconsin.

General Electric X-Ray Corporation, Chicago.

Bard-Parker Company, Danbury, Connecticut.

H. J. Heinz Company, Pittsburgh, Pennsylvania.

Illinois Surgical Supply Company, Chicago.

DePuy Manufacturing Company, Warsaw, Indiana.

Cameron Surgical Specialty Company, Chicago.

Chappel Brothers Laboratories, Rockford.

Philip Morris & Company, New York City, New York.

McIntosh Electrical Corporation, Chicago.

Kelley Koett Manufacturing Company, Covington, Kentucky.

Universal Products Corporation, Pottstown, Pennsylvania.

Lea & Febiger, Philadelphia, Pennsylvania.

C. V. Mosby Company, St. Louis, Missouri.

Kremers-Urban Company, Milwaukee, Wisconsin.

NOTES ON EXHIBITS

W. B. Saunders Company will exhibit, in Booth No. 14, its complete line of medical books. Of particular interest are a great number of new books and new editions, including Hinman's Urology, Kitchens' Diagnosis in General Practice, Curtis' three-volume work on Obstetrics and Gynecology, Bickham's fine seven-volume Operative Surgery, advance proofs of the new Mayo Clinic Volume, Callander's Surgical Anatomy, new editions of Babcock's Surgery, Beckman's Treatment in General Practice, Cecil's Medicine, De Lee's Obstetrics, Medical Clinics of North America, Surgical Clinics of North America, Stokes' Syphilology, and many others.

In Booth No. 30 the A. S. Aloe Company of St. Louis will show two new items of special interest: the Aloe Radio Short Wave Diatherm and the new style Elliott Machine. Also on display in this booth will be Stille-Scanlan rustless steel instruments, featured at

25% discount. Full lines of instruments and supplies will complete the Aloe display, with descriptive matter on the new Aloe genuine walnut wood furniture suite.

Mead Johnson & Company will have on exhibit, in Booth No. 28, its complete line of infant diet materials including Dextri-Maltose, Mead's Standardized Cod Liver Oil, Mead's Viosterol in Oil, Mead's Cod Liver Oil with Viosterol, Mead's Viosterol in Halibut Liver Oil (liquid and capsules), Mead's Halibut Liver Oil, Mead's Brewers Yeast (powder and tablets), Pabulum, Mead's Cereal, Sobee, Mead's Powdered Protein Milk, Mead's Powdered Lactic Acid Milk, Mead's Powdered Whole Milk, Alacta, Recolac and Casec.

There will also be for the examination of physicians a complete line of Mead's services such as "Diets for Children from Four Months to Four Years," height and weight charts, etc., all of which are free to members of the medical profession in any quantity desired.

Representatives will be on hand to meet their friends and to discuss the application of any of the Mead products to infant feeding problems.

Mellin's Food Milk Modifier will occupy Booth No. 7. The proportion of maltose and dextrins in Mellin's Food, the protein and mineral salts content and the favorable effect of Mellin's Food on the digestibility of milk are distinctions that commend Mellin's Food as a modifier of milk for the feeding of infants.

Tryparsamide Merck is the chemotherapeutic agent of choice for the treatment of neurosyphilis. Its use is an office procedure. It is administered intravenously, does not disrupt the patient's daily routine of life, and is inexpensive. Full information can be obtained at the Merck Booth, No. 15.

Look up these unusual new books at the J. B. Lippincott Company's exhibit: Booth No. 23. Pfandler & Schlossmann, "Diseases of Children"; Peham & Amreich, "Operative Gynecology"; Kirchner & Ravdin, "Operative Surgery"; Barker, "Treatment of the Commoner Diseases"; Contributions to Surgery in Honor of Charles H. Frazier; Emerson, "The Nervous Patient"; Barborka, "Treatment by Diet"; Goldthwait, "Body Mechanics"; Sr. Gabriel's "Through the Patient's Eyes"; Moore, "Principles of Ethics."

And the new edition just issued of these well-known texts and reference books: Eisendrath & Rolnick "Urology"; Anspach, "Gynecology"; Davis & Muller, "Applied Anatomy"; Thorek, "Surgical Errors and Safeguards"; Rehberger, "Quick Reference Book of Medicine and Surgery"; International Clinics, plus the Pittsburgh Diagnostic Clinic Home Post-Graduate Plan; Annals of Surgery.

All these books are unusually and beautifully illustrated, with the exception of Barker and must be seen to be appreciated. You will be welcome at the Booth and will not be importuned to buy.

Sharp & Smith will have on display, in Booth No. 1, the new Charles Robert Elliott Treatment Machine,

which embodies all of the newest improvements. In addition, a complete line of surgical instruments, as well as hospital supplies will be available.

Mr. Frazin will be in attendance, as will Mr. Denny. Both of them will be glad to welcome their friends.

V. Mueller & Company will show many new items at their exhibit, in Booth No. 20, including short wave diathermy, the new Shahan lamp, an Iodine Vaporizer for treating suppurative diseases of the nasal sinuses, the Furniss Clamp for intestinal anastomosis, in addition to their usual large display of staple instruments.

The purpose of our Company in exhibiting at your annual convention is largely, so far as we are concerned, a matter of good will toward the Illinois State Medical Society of which so many members are medical examiners for this Company throughout the State. The principal use made of the booth is merely to give our medical examiners at the convention an opportunity to meet various members of the Company who are from time to time present and also to give us an opportunity to meet personally some of the medical examiners whom we would not have an opportunity to know otherwise. Bankers Mutual Life Company, Freeport, Illinois. Booth No. 26.

The Professional Liability risk of the doctor cannot be given an underwriting classification with any other type or types of insurable hazards, without disadvantage to the doctor. The circumstances out of which arise the reciprocal rights and duties of a doctor and his patient are peculiar to their relationship; the interest of the doctor in the management and disposal of charges of negligence against him is not to be compared to that of any other class of damage suit defendants. The most exacting requirements of adequate liability protection are those of the Professional Liability field.

The Medical Protective Company is exclusively engaged in that field.

Our representatives, thoroughly trained in Professional Liability underwriting, invite you to confer with them at exhibit Booth No. 24. Examine there the current issue of "The Doctor and the Law" the periodical which is published by the Law Department of The Medical Protective Company for its contract holders and which is devoted exclusively to a discussion of law affecting the practice of medicine."

Doctors visit the Kellogg Booth No. 13! The actual amount of iron and other minerals present in Kellogg's All-Bran is shown in an interesting display arranged in the Kellogg Booth. Reprints of recent articles in the Journal of Biological Chemistry, covering experimental work with bran at Columbia University, are available. Also reprints of reports on sleep experiments at Colgate University. Kellogg's Kaffee Hag Coffee (97% caffeine free) is being served at the booth. Visiting physicians will find the display of caffeine of interest.

Visitors at the Gerber Products Booth No. 22 will be shown the Gerber's Strained Cereal, Vegetables, and Prunes and given information concerning the new shaker-cooker process which has just been announced.

Booklets and leaflets are available. Some of these are suitable for distribution by physicians and some are for professional use only.

Horlick's Malted Milk Corporation, in Booth No. 5, will explain the special uses of Horlick's Malted Milk, natural and chocolate flavors, as a food of remarkably nutritive and digestible qualities, both in sickness and in health. Samples of Horlick's Malted Milk Tablets will be distributed as a reminder of their usefulness as a pleasing variant in the liquid diet, and as a beneficial confection for children.

General Electric X-Ray Corporation, Booth No. 4. The visiting physician will see the smallest, practical x-ray unit ever designed for office and portable work. The unit weighs only 30 pounds, is energized through the ordinary light outlet, is remarkably flexible, oil-immersed and 100% electrically safe—shock proof.

The doctor will also receive a demonstration of the Inductotherm, a startling new development for creating heat in the tissues. A vacuum tube oscillator, generating an alternating current of 12,000,000 cycles per second. There are no body electrodes required. The Inductotherm introduces the most simplified and convenient method ever conceived for the heating of the deep tissues and for fever therapy.

Mr. J. O. Anderson and his men will be in charge of the exhibit and they will be prepared to tell about expected new developments in x-ray.

Booth 2. Of interest to the profession will be the new improved Bard-Parker detachable blade perfected after three years of intensive research. This blade will be of valuable aid in surgical technic. Other Bard-Parker products to be exhibited include a complete line of Renewable Edge surgical scissors, a comprehensive sterilizing exhibit showing several types of sterilizing containers and a complete line of quality surgical instruments with the Lahey lock. Booth No. 2.

H. J. Heinz Company, Creators of the Famous 57 Varieties of Pure Foods, displaying Strained Foods, Tomato Juice and Breakfast Cereals especially suited to Infant Feeding and diet therapy.

Do not fail to register for the Heinz Nutritional Charts, a set of reference charts invaluable to the doctor in diet planning. Booth No. 27.

In Booth No. 6 the Illinois Surgical Supply Company will display the following equipment: Latest Pneumothorax equipment; Blood Transfusion Equipment; late developments in short wave physical therapy. Possibly our new Hydraulic chair and other new operating instruments.

The DePuy Manufacturing Company invites every

surgeon in Illinois to see the new Griswold Combination Reducing Frame and Splint at Booth No. 16. When attending the Illinois State Medical Meeting, make the DePuy booth your headquarters.

The Cameron Surgical Specialty Company, Booth No. 3, is showing the very latest developments in electrically lighted diagnostic instruments.

Surgimold is the name of the new material now replacing metal. See it and you will know why we changed from the regulation metallic type.

Our representative will also explain how it is possible for you to exchange your present Cameron instruments for late models.

Ask to see the Tele-Vaginalite (Micro-Colposcope) now so widely used in the vagina for revealing leucoplakias in their incipency and insuring an early and accurate diagnosis of cervical malignancies.

Other new and interesting items are the new full vision, proximally lighted Bronchoscope and 5-in-1 Surgimold Ophthalmoscope. The Cameron Cauterodyne in a new and inexpensive model for cutting and coagulating in office and ambulatory surgery is being shown for the first time.

Laboratories Chappel Bros., Inc., Rockford, Illinois, will show their complete line of preparations for the treatment of anemias. These include Liver-Iron Compounds for secondary anemias; Oral Liver Extract for pernicious anemia; the well-known Subcutaneous Liver Extract—and a new concentrate for intramuscular use, intended for intensive treatment of patients with very low blood count.

Case reports obtained with Prephysin-Chappel, the pituitary gonad stimulating hormone, will be presented to interested visitors ahead of pending publications.

The Chappel exhibit is in Booth No. 9.

In Booth No. 10 the McIntosh Electrical Corporation will exhibit the Hogan Brevatherm short-wave diathermy apparatus with cutting current, which has evoked most favorable commendation.

A splendid bargain will be offered in a 300-watt infra-red lamp and stand for only \$9.75.

An attractive display of conventional type 300-meter diathermy units, sinusoidal wave current generators, galvanic units facilitating the well-known Keesey hemorrhoidal technique, and a novel, inexpensive type of the Vattenborg Colonic Irrigator will be shown.

Inexpensive and practical units and accessories for tonsil and cervical coagulation will be presented.

A visit to the Kelley Koett Manufacturing Company Booth, No. 17, will give you an opportunity to thoroughly examine the extensively advertised and extremely popular K-90 X-ray Apparatus—a complete unit for Radiographic and Fluoroscopic work combining within a compact floor space a full sized Tilting Table, with Full Length Potter Bucky Diaphragm, a Rail Mounted Counterbalanced Tube Stand, a 90 Kilo-volt Capacity Shockproof Transformer and Tube Head,

with Remote Control, and a Fluoroscope for use in both the vertical and horizontal positions.

Another unit that you will want to see is the new Mobile K-90 Bedside Apparatus. Also, the new Shockproof All-Purpose Portable X-ray Apparatus. Both of these units have been designed for specific types of work and everyone attending the meeting should make certain to set aside some time to view these new developments.

The equipment will be set up so that the observer may readily see every feature pertaining to each specific item.

The Surgeons' X-L-Lyte meets the demand for an inexpensive yet handy, compact and serviceable diagnostic set.

The set contains ear speculum, tonsil pillar retractor, tongue depressor, magnifying lens, and nasal speculum, with direct illumination for all.

Nickel silver curette, probe, ear spoon and applicator are included in the set.

The set is contained in a neat and serviceable leather case which is equipped with a hookless fastener.

See this exhibit at the Universal Products Corporation booth.

In Booth No. 19 Lea & Febiger exhibit a number of new books of unusual importance, as well as new editions of established works well known to the profession. Among the new books will be found the long awaited Graham, Singer and Ballou's Surgical Diseases of the Chest, Berglund and Medes' resume of the symposium held at the University of Minnesota—The Kidney in Health and Disease, Cowdry's Histology, a radical departure from the conventional texts on this subject, Wiggers' Physiology, Adair and Stieglitz's Obstetric Medicine, Feinberg's Allergy, Clapp on Cataract, Atkinson's External Diseases of the Eye, and Duncan's Diabetes and Obesity.

The standard works now shown in new editions include Bridges' Dietetics for the Clinician, Musser's Internal Medicine, Romanis and Mitchiner's Surgery, Boyd's Text-Book of Pathology, Kuntz's Autonomic Nervous System, Fishberg's Hypertension, Nicholson's Laboratory Medicine, Joslin's Diabetic Manual, Treves' Anatomy and Kovas' Electrotherapy.

Physicians attending the Rockford Meeting of the Illinois State Medical Society are invited to visit the C. V. Mosby Company, Booth No. 12, and look over the new medical volumes that will be on display. Among the newer items to be shown for the first time will be the following: Gradwohl "Clinical Laboratory Methods and Diagnosis," new editions of Clendening "Methods of Treatment," Macleod "Physiology in Modern Medicine," Sutton "Diseases of the Skin" and Elmer-Rose "Physical Diagnosis." Also Dodson "Synopsis of Genitourinary Diseases," Zahorsky "Synopsis of Pediatrics" and Pottenger "Tuberculosis

in the Child and Adult." Our full lines of medical journals will also be shown.

This is to advise our good friends and customers that Kremers-Urban Company will be represented in Booth No. 18.

"Philip Morris & Company, Ltd., Inc., manufacturers of Philip Morris cigarettes, has been studying the effects of smoking on irritation of the mucous membrane of the upper respiratory tract. In the booth one of its research staff will be available to explain the work and the results obtained. Samples of Philip Morris cigarettes will be distributed. Booth No. 21."

Hynson, Westcott & Dunning, Inc., Baltimore, Maryland, will have a representative display of their products in Booth No. 25. The Alcohol-Acetone-Aqueous solution of Mercurochrome will be featured. This particular form of Mercurochrome was introduced to the profession in 1925 and is widely used as a pre-operative skin disinfectant. A sample may be had for the asking. Literature and full information on all other H. W. & D. products will be available.

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THE BUREAUCRATIC SNOWBALL

The Reconstruction Finance Corporation was devised as a temporary expedient. Loans were to be made to organizations which were inherently sound but which were in difficulties because of their inability to obtain credit in the midst of financial panic.

Now the corporation is asking authorization to extend loans to solvent and to new mortgage companies; it is requesting an additional two years of life; and it wants the maximum term of its loans extended from five years to ten.

Here is another evidence of the age-old truth that bureaucracies never surrender. A temporary organization, improvised to meet an emergency situation, is no sooner born than it begins to reach out for more appropriations, more power and a longer life. The occasion which called it into being may long have been forgotten, but it goes on and on. The longer it lives the deeper its roots strike. The money it distributes and the patronage it provides give it the political influence to extend its operations further.

There is only one cure. It is the ax! The politician who temporizes with a bureaucracy is licked before he starts.—Editorial in Chicago Tribune, Jan. 29, 1935.

YOUNG GRANDMOTHERS

"Biologically and mathematically," the December Quarterly said, "it ought to be possible for a woman, in the temperate zone, to be a grandmother at an age

somewhere between twenty-four and twenty-eight years; but it isn't often, among so-called civilized people, that anyone comes near hitting that mark."

We asked if any Quarterly reader could show a record better than a circumstance in Chicago, whereby in a family was a woman of 47 a great-grandmother; a grandmother at the age of 32; and a mother at 17, and, in the collateral line, a grandaunt seven years old.

Dr. William P. Caton, of Alexandria, Va., in June, 1933, delivered a girl of 14 years, who lived on a part of Gen. Washington's old estate. The girl's mother was 28 when this grandchild was born.

Dr. Thomas W. Paton, of Ypsilanti, Mich., was an uncle to ten young people on the day of his birth, and he was a great uncle at the age of five years.

Incidentally, Dr. Paton is the youngest member of a Scottish family which originally numbered 23 children, of whom 18 reached adult life. One died at 94 and two are still alive at 88 and 90 years.—Medical Quarterly.

DIPHTHERIA OF THE PENIS

Maxwell P. Borovsky, Chicago (*Journal A. M. A.*, April 20, 1935), states that only four cases of diphtheria of the penis have been reported in the literature occurring under 1 year of age. He believes that the patient he observed is the youngest one on record, 3 weeks. Information concerning the two other authentic cases, one in the new-born period and one at 6 weeks of age, was received by personal communication. Two other cases are recalled by the Chicago health department authorities. In all five cases (three absolutely authentic, two reported from memory by Chicago health department authorities), circumcision was done by the same mohel. The author believes that transmission of the diphtheritic infection probably took place in his case during the change of dressings at home two days after the circumcision. The mask and rubber gloves worn during the operation would probably prevent the infection at that time.

A FEW OF THE KICKS

Getting out this publication is no picnic.

If we print jokes, people say we are silly.

If we don't, they say we are too serious.

If we clip things from other magazines, we are too lazy to write them ourselves.

If we don't we are stuck on our own stuff.

If we stick close to the job all day, we ought to be out hunting news.

If we do get out and try to hustle, we ought to be on the job in the office.

If we don't print contributions, we don't appreciate true genius; and if we print them, the magazine is filled with junk.

If we make a change in the other fellow's write-up, we are too critical.

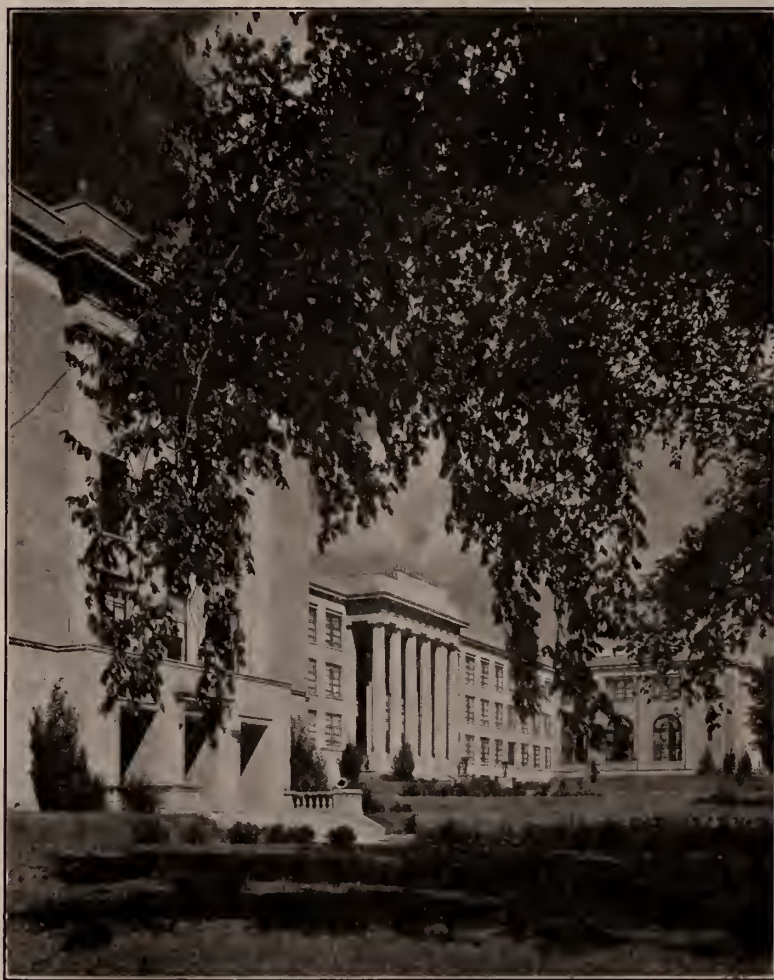
If we don't we are asleep.

Now, like as not, some guy will say we swiped this from some other magazine.

We DID!!



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Rockford Hospital



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Rockford Park Scene

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Edited by the Committee on Medical Economics

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Kankakee, Illinois

C. S. Skaggs, M. D.
R. K. Packard, M. D.
H. M. Camp, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

It is quite encouraging to see that meetings are being held over the state by the component County Societies to discuss economic problems. On April 25, Warren County Medical and Dental Societies held a joint meeting to discuss, "Present Day Social Economic Trends and Their Possible Influence on the Practice of Medicine and Dentistry." Discussion was led by W. H. G. Logan, M. D., D. D. S. This is a further step in the right direction for, after all, dentistry should be and is a specialty in medicine. Dr. Logan being both a physician and a dentist has a peculiar insight into the problem from both professions and it is to be hoped that his talk will be made available to the medical profession of the state through the *ILLINOIS MEDICAL JOURNAL*. Since the problems of the medical and dental professions are so similar it would seem well for the societies to cooperate in the dissemination of information to both professions as well as the laity, so that if and when the time comes for action through our legislators we have that many more ready.

It is also encouraging to see that the Secretaries' Conference at the State meeting to be held at Rockford has given over the first morning, Tuesday, May 21, to a discussion of economic problems. The officers of the conference have arranged a fine group of speakers, lead by Dr. Olin West, Secretary and General Manager of the American Medical Association, Dr. Bowman C. Crowell, Associate Director of the American College of Surgeons, Dr. R. K. Packard, Chairman of the Council of the Illinois State Medical Society, and Mr. B. F. Roloff, State Director of the Medical and Dental Service of the Illinois Emergency Relief Commission. All phases of the present economic problems will be presented and there will be plenty of time for a free and open discussion by all present. Of course, opportunity will be given to ask questions. This seems like a meeting that every thinking man in the profession will want to attend. It

will start at 9:00 A. M. and there will be only a limited amount of competition by other sections at that time so that as many as possible will be able to attend. After this meeting there will be no excuse for anybody really interested in the problems and the future of medicine to be uninformed as to exactly what has been done up to this time and what the reformers hope to accomplish in the future. The time will make it possible for those who either drive or come by train to arrive by the time the meeting starts. Please look over the outlined program on page 304 of the April issue of the *ILLINOIS MEDICAL JOURNAL* for the details of the program. Undoubtedly this issue, May, 1935, will contain more details and any changes that may have been necessary. The attendance at this meeting will show the interest of the profession on this subject.

According to a news item in the *Chicago Tribune*, 70 hospitals in New York City have started the plan of Group Hospitalization. While no definite announcement or details of the plan have been seen in any medical journal, the plan will be watched with great interest all over the country. The success or failure of the plan in New York will help to decide the future of the plan in many other cities. According to the latest available information the plan has not been adopted in Chicago, although it has many very strong advocates there. It is to be hoped that the fundamental tenets adopted by the Council of the Illinois State Medical Society at its January meeting will be used in any plan adopted in Illinois.

E. S. HAMILTON,
Chairman Committee Medical Economics.

THE NECESSITY FOR COOPERATION

One year ago, no one had any definite information which would lead us to believe that our legislatures, Federal and State, would be considering plans for creating an insurance

board and the approval of plans for health insurance this year.

Last July, President Roosevelt appointed his Committee on Economic Security for the purpose of making a study of the needs of the American people in regard to their future economic stability. About fifteen basic subjects were selected for the study, and at that time, the subject of medical care was towards the bottom of the list. Soon after the list was made public, the President and Members of this Committee were deluged with letters, telegrams, and many personal calls demanding that the subject of medical care should be made a major subject for study, and as a result of their appeals, it was placed third on the list of subjects for intensive study.

When consideration is given to the proponents of health insurance, it is rather interesting to note that the people who supposedly would benefit most under such a scheme, are not asking for it at all. The indigents who are normally cared for by the township organization, are not asking for it, and the unemployed indigents on relief are being cared for by our relief organizations and know nothing at all about the subject of health insurance. The employer, who would be compelled to pay a considerable amount of money into the insurance fund, is generally opposed to the idea. We do find among the proponents, a group of so-called economists, theorists, "brain trusters," and a large group now classed as "welfare workers," who evidently have the opinion that under a system of health insurance, they would have an important part to play in the administrative end of the service. It is of considerable interest that those individuals who supposedly would benefit most under the system which has been proposed, and the physicians and dentists who would be expected to actually furnish the care, are interested in promoting the project. This has been generally true in other countries where proposed health insurance movements have developed.

In considering the need of a health insurance scheme in this country, there present themselves for our consideration, three possible things,

1. The cost.
2. The results.
3. The service.

It has been conclusively shown that health insurance costs more than medical care given by

individual physicians in the old established methods of administering medical care. It has been shown that the cost of providing medical care in Germany to the 35,000,000 insured, is approximately four times as much as providing medical care to the 30,000,000 uninsured. Likewise, the mortality and morbidity statistics among those people paying for their medical care show a more satisfactory improvement than is shown for the insured group. The cost of providing medical care under insurance is necessarily greater when we realize that a considerable part of the time of the physician is required for clerical duties,—making out the regular reports, and consideration of the renewal of disability certificates. Likewise, the expenses of the vast army of people working in the administrative departments must come from the insurance funds.

From statistics released by the League of Nations, it is shown conclusively that there has been a greater improvement in both mortality and morbidity statistics in this country without health insurance than is found in European countries. The infant death rate per 100 live births, is lower in the United States, and the general death rate from all diseases per 1000 population is lower in the United States than elsewhere.

Now, in regard to the service actually rendered, it is quite obvious that when physicians are unhampered by Federal or State regulations, are not compelled to make out daily reports for administrators, insurance boards, and an insurance commissioner, they will have more time to study, and to give their patients individually. Medical society meetings are better attended, and physicians have a greater incentive for development than those whose practice is completely subsidized.

When we realize that before the development of health insurance, Europe furnished the majority of medical discoveries, while today, the majority of these in all specialties in Medicine are developed in this country, it is quite evident that medical progress is checked with health insurance under political control.

The medical profession of this country is thoroughly aroused and is willing to fight for their heritage, the practice of medicine as individuals, so that their profession is allowed to develop its own code of ethics, and methods of providing medical care, as the lawyer is permitted to prac-

tice his profession, and other professional men, theirs.

All ethical practitioners of medicine today, more than ever before, should belong to their county and state medical societies and participate in the deliberations, and also do their part to prevent the subsidization of medicine. It is not enough for the members to believe that the officers of the societies, members of the council, and a few others who are more aggressive, should do all of the work to insure the future of medicine as we desire it to be. There is work to be done by all, and there should be no slackers in the profession. At this time it is quite important that every physician should become thoroughly informed on the subject of health insurance, and other important economic subjects before us. We should be able to discuss these subjects with our friends and show them what it would mean to them and their families, if a radical change is made in the methods of providing medical care.

Every physician should be interested in his legislators. Whenever a member from the district does something to favor the practice of medicine, he should receive letters from physicians of the district thanking him for the consideration given to the medical profession. Many times our legislators are much better friends than we have imagined, and after all, they are all human.

At this time it seems rather doubtful if attempts will be made in the present session of our Federal Congress to force a system of health insurance upon the citizens, but the medical profession of America is now thoroughly aroused, and are better educated on its costs and evils than ever before. The time to repair the roof is before the rain, so if we do not actually have attempts made this year to change the system of medicine in this country, we are in a much better position than ever before to fight such attempts later on.

This is the time for all medical societies and all physicians who are non-members to cooperate in a generalized program to offset all inroads into medical practice. We should study the various methods used today in various parts of the country to give adequate medical care to all people, regardless of their ability to pay, and commensurate to their income. The American Medical Association, the Illinois State Medical Society, and many other similar state societies are intensively studying these systems, and we

should have some reliable informative data available on these subjects within a short time.

Now is the time for well organized membership committees in our county societies to get busy and bring into the membership, all eligible physicians within the county. The county society needs the additional members, but most of all, these physicians need the benefits of membership. With the aid given to county societies today by our State Medical Society, in arranging programs, procuring speakers, and through press and radio informative talks, no physician anywhere can afford today, to be without membership in county medical societies.

H. G. Wells, in one of his characteristic speeches, said we must have education or catastrophe. This education applies chiefly to the adults and not to children in educational institutions. The education of physicians is no longer completed when he receives his diploma and his license to practice. The teaching of strictly scientific courses in our medical institutions is not sufficient to educate physicians. We need intense training continuously in all phases of medical economics, and we need to cooperate with other practitioners, and with our medical societies. When this is properly and thoroughly accomplished, we will have no further fear of governmental interference with the profession of medicine in America.

H. M. CAMP, M. D.

AT THE DOOR

"Beyond this door shall never go
The burdens that are mine to know;
The day is done, and here I leave
The petty things that vex and grieve;
What clings to me of hate and sin
To them I will not carry in;
Only the good shall go with me
For their devoted eyes to see."

He wiped his shoes before his door,
But paused to do a little more.
He dusted off the stains of strife,
The mud that's incident to life.
The blemishes of careless thought,
The traces of the fight he'd fought,
The selfish humors and the mean,
And when he entered he was clean.

EDGAR A. GUEST.

BLUE-RIBBON SIMILE

As broke as a pickpocket in a nudist colony.—*Henry Vance in the Birmingham News.*

Correspondence

ROCKFORD INVITES YOU TO THE STATE MEETING

The Winnebago County Medical Society cordially invite all members of the Illinois State Medical Society to our Annual Meeting, to be held in Rockford, May 21, 22, 23, at the Faust Hotel.

The Faust Hotel is the largest hotel in the state outside of Chicago. All sessions, all exhibits and everything pertaining to the State Meeting will be held there. We think that this is a decided advantage to all visiting members, as it will not be necessary for them to leave the hotel to attend any session or see any exhibit.

For the convenience of the exhibitors we have made arrangements with the Railway Express Agency to handle all exhibits, transporting them to and from the hotel, and the exhibitors are entitled to four days' free storage by the express company.

There will be music by the 40 and 8 band of the Blackhawk Voiture 408.

VETERANS' BANQUET

In reference to this banquet, the impression has been heretofore that only veterans were eligible to attend. This year any member or guest is invited to attend and participate in this delightful function.

STAG

The Stag at Rockford will be unusual and much different than any held before. The Stag alone should induce you to come to Rockford. The program is a deep, dark secret and will be learned only by attendance.

PRESIDENTS' DINNER

Rockford is noted far and wide as a musical center, and the Medical Profession keeps pace with the rest of the city. The "Singing Doctors" will furnish vocal selections and the Quin' Bowen's Orchestra will furnish the music.

WOMAN'S AUXILIARY AND ALL VISITING LADIES

The ladies can be assured of a cordial reception by the members of the Winnebago County Medical Society and their wives.

Extensive plans have been made by the local committees for their entertainment.

ENTERTAINMENT

Ample opportunity will be given to all who

attend the State meeting to participate in golf and other diversions.

T. H. CULHANE, M. D.
General Chairman Arrangements Committee.

UNIVERSITY OF ILLINOIS ALUMNI OPPOSE CORPORATION PRACTICE OF MEDICINE

WHEREAS: Attempts are being made to legalize the practice of medicine by corporations in Illinois and we, as physicians in active medical practice, know this to be detrimental to the welfare of the people, and that it might lead to a control by forces interested in profit only, encouraging absentee ownership and,

WHEREAS: Corporate practice of medicine will lower the present standards of medical service, by indiscriminate advertising, destruction of the personal contact between patient and family physician, and check medical advance by lessening research activities and destroying the incentive to capable young men and women to enter the medical field, and,

WHEREAS: There has been introduced in the legislature of the State of Illinois "An Act to amend the Medical Practice Act by adding thereto Section 20A providing that corporations may practice medicine, which Act is known as House Bill No. 425.

Therefore, Let it be resolved, that we, the Alumni of the College of Medicine, University of Illinois, numbering over 4,000 active medical practitioners, are opposed to H. B. 425 or any similar legislation permitting corporate Medical practice in Illinois, and

Be it further resolved, that copies of these resolutions be forwarded to the American Medical Association, Illinois State Medical Society, Chicago Medical Society, Governor Henry Horner, Attorney General Otto Kerner, Dr. Frank Jirka, Director of Public Health, and to each member of the Committee on Public Welfare of the House of Representatives of Springfield.

(Signed) M. J. HUBENY, M. D.,
President Alumni Association, College
of Medicine, University of Illinois.

PHARMACIST PROTESTS PROPOSED NATIONAL SICKNESS INSURANCE

Sutliff & Case Company, pharmaceutical manufacturers, mailed to 5,000 doctors in Iowa, Illinois, Indiana and Kentucky the following protest against the

enactment of proposed national sickness insurance in this country:

Something should be done—and done at once—to acquaint your national and state congressional representatives regarding your stand—and the stand of your patients—on proposed National Sickness Insurance.

There is no public demand for Sickness Insurance but there is a tremendous propaganda campaign being carried on principally through the Milbank Memorial Fund, The 20th Century Fund, Inc., both of New York and the Julius Rosenwald Foundation, Chicago.

Such "foundations" would tear down and destroy, possibly for all time, the public benefits that medicine is now rendering through centuries of loyal, self-sacrificing service.

The enclosed is a synopsis of facts. We hope you will find it useful. May we suggest you have the petition filled in by legal voters and then mail it to your U. S. Senator.

Duplicates sent to your Representative and members of your State Legislature would aid in being the means of defeating Sickness Insurance legislation that can not help but make, to our minds, chronic and demoralized invalids out of a nation of ambitious people.

Yours very truly,
SUTLIFF & CASE CO., INC.,
Sec'y-Treas.

UNIVERSITY OF ILLINOIS ALUMNI LUNCHEON

Alumni, faculty members and friends of the University of Illinois College of Medicine are planning a luncheon to be held at twelve o'clock noon Wednesday, May 22nd, during the State Meeting of the Illinois Medical Society at Rockford, Illinois.

The beautiful new Rainbow Room in the Faust Hotel has been secured for this luncheon, which will not only provide an attractive setting, but a convenient one as it will be in the same building as other sessions of the convention.

Illustrated Travelogue. Dean D. J. Davis will be the principal speaker. Wm. H. Browne known to many old students as Uncle Bill, for many years secretary of the Medical School, has also promised to be on hand. For those who have not kept in close touch with the College of Medicine, an illustrated talk, showing the physical equipment and facilities of the college buildings will probably be a highlight of the meeting.

The proximity of Rockford to Chicago, Wisconsin and Iowa will undoubtedly produce an unusually large attendance at the luncheon.

Dr. Maximilian J. Hubeny, President of the Alumni Association, will be in charge of the luncheon.

Dr. W. L. (Jeff) Crawford of Rockford is the general chairman in charge of the local committee making plans for the event.

PEDIATRIC LUNCHEON

Pediatricians attending the meeting of the Illinois State Medical Society at Rockford on May 21 are planning a luncheon to be held after the pediatric program Tuesday noon. The luncheon will be held in the Rainbow Room of the Faust Hotel, in the same building where the rest of the sessions are held.

The local Pediatric Committee consisting of Drs. W. L. Crawford, Chairman, K. G. Woodward, T. J. Krauss and J. H. Garthe are rumored to be planning something for the pediatricians Tuesday evening but have not released their plans as yet.

The excellent pediatric papers given in the other sections in addition to the papers given at the pediatricians meeting Tuesday morning should produce a large pediatric attendance.

DR. CHARLES S. SKAGGS ADDRESSED THE WOMAN'S AUXILIARY

In his talk to the Woman's Auxiliary to Aux Plaines Branch of the Chicago Medical Society Dr. Charles S. Skaggs touched on a number of subjects that he considers of vital importance to the Medical profession, and that, he says, includes the Woman's Auxiliary. "For," he says, "your organization was brought into being for a definite purpose. As women you were long ago set apart and designated as helpmates. The Auxiliary has a purpose to serve humanity, a field of endeavor, not a playground—keep one step ahead of the social worker. The Auxiliary has a program of 18 projects.

"Some unpleasant issues must be met and faced, not sidestepped. The Medical profession will be sunk unless something is done within the year. The special meeting of the House of Delegates and the influence they were able to bring, probably stopped legislation that would have spelled disaster to the profession.

"Medicine is an individual walk of life—patient and doctor—and must be free. Socialized medicine means that the doctor is no longer a free man, but at the beck and call of politicians. If medicine becomes commercialized it will be largely because of bad ethics within the profession.

"It is not plans that are needed, it is a plan that all are willing to accept. The world needs followers more than it needs leaders.

"Business has taught us to run the affairs of life on credit. This is not only true in commercial life, but in our social life. I want to be given my full share of credit for the things I do, therefore I am loath to follow a leader. We need trust in each other, we must learn to be truthworthy. All that we have

in life that is worth while is the result of an ideal—the rest—the lack of an ideal.

"Medicine has a great responsibility, the Woman's Auxiliary has a great responsibility—search your hearts and see if you have justified having been formed. The Auxiliary is greater than any one member but depends on each member and her relation to the Auxiliary as a whole. Doctors' wives must hang together for the salvation of the profession. Man will rise no higher than his women. Each of us has a place in life, the physician's place is among the sick and those who need guidance in health. By your choice you have taken this place with him."

Dr. Skaggs urged that wives encourage their husbands to attend the meetings of the Medical Society and especially the coming State Meeting, adding that "if they do not go to the Society meetings and do not pull together, there will be no Medical meetings to go to." Also he said he was not here to pay compliments to the State President, and at the same time took "time out" for a very complimentary appreciation of work done by her.

Concerning the question of the Auxiliary joining the Federation of Woman's Clubs, Dr. Skaggs has very definite ideas. He expresses them thus:

"As an Auxiliary it is my opinion that you should not join the Federation of Women's Clubs.

"First. You are not a club and should never be.

"Second. You are an auxiliary to a medical society.

"Third. Many clubs sponsor movements that you oppose, and if the majority of the clubs in the Federation should vote to sponsor a movement that medicine must oppose, as a member of that Federation you would be duty bound to follow the mandates of the majority.

"Fourth. You must remain free of entanglements so that as an organization and as individuals you can support those high principles to which your organization has pledged itself. You must have this independence to be free to oppose those things that tend to weaken and destroy organized medicine."

MRS. REID O. HOWSER,
Chairman Press and Publicity,
Aux Plaines Branch,
Chicago Medical Society.

WOMAN'S AUXILIARY TO THE ILLINOIS STATE MEDICAL SOCIETY

The Board of Directors of the Woman's Auxiliary met at the Blackstone Hotel, Chicago, March 30, 1935. The president, Mrs. Lucius Cole, presided. Out of town members were guests of the Chicago directors, with the following present:

Mrs. W. D. Chapman of Silvis.
Mrs. D. J. Evans of Aurora.
Mrs. Imas Rice of Aurora.
Mrs. E. E. Beatty of Pontiac.
Mrs. A. B. Middleton of Pontiac.
Mrs. F. E. Bollaert of East Moline.
Mrs. M. B. Jellife of Springfield.
Mrs. A. T. Aschauer of Springfield.

Mrs. H. B. Henkel of Springfield.

Mrs. E. S. Allen of Arcola.

Mrs. I. L. Foulon of East St. Louis.

Mrs. R. F. Stanton of East St. Louis.

Mrs. E. R. Steen of Joliet.

Mrs. A. W. Grote of Bloomington.

Mrs. Cole has attended in two months seven auxiliary meetings in and around Chicago, presenting some phase of auxiliary work.

Reports were given by chairmen of standing committees showing the excellent work being carried on in each department. All state members are to receive copies of the annual reports of the past year.

During the luncheon hour Dr. R. K. Packard of Chicago talked on "Health Insurance."

At the National convention charts will be shown depicting activities of the auxiliary. The scrap book of the Press and Publicity will also be on exhibition. There will be a Hygeia Exhibit at the State Convention.

The Woman's Auxiliary to the Iowa State Medical Society will hold its annual meeting in Davenport, May 8, 9, and 10. On May 9, they are having a luncheon at the Rock Island Arsenal Club, when a group of Illinois ladies will join with the Iowa Auxiliary.

Mrs. Lucius Cole, our State President, is expecting to be in attendance at the meetings.

Sangamon County Auxiliary Meeting:

Mrs. A. T. Aschauer was elected president of the auxiliary of the Sangamon County Medical Society at the home of Mrs. J. C. Jackman. Mrs. Aschauer also was named a delegate to the State convention.

Other officers elected were: vice-president, Mrs. David McCarthy; secretary, Mrs. H. H. Southwick, and treasurer, Mrs. Corwine S. Mayes.

Papers on leading medical subjects were presented.

Livingston County Auxiliary Meeting:

Mrs. C. F. Ward is the newly elected president of the Livingston County Auxiliary. Other officers are: vice-president, Mrs. H. L. Shaffer; secretary and treasurer, Mrs. C. M. Dargan.

The members enjoyed a meeting on April 5 at the Spinning Wheel Tea Room in Pontiac. An interesting program was presented.

Saline County Auxiliary Meeting:

The Auxiliary members held a meeting at the home of Mrs. B. B. Hutton. Mrs. Vernon Ferrell of Eldorado is the newly elected president.

Bureau County Auxiliary Meeting:

The newly elected officers of the Bureau County Auxiliary are as follows; president, Mrs. R. E. Davies; vice-president, Mrs. Clarence Olson; secretary and treasurer, Mrs. Harold Hopkins.

MISSISSIPPI VALLEY MEDICAL SOCIETY

Organized at Quincy, Illinois

A new medical organization to be known as the MISSISSIPPI VALLEY MEDICAL SOCIETY was formally organized at Quincy, Illinois, on April 8. The sole purpose of the new society is to hold an annual meeting each fall devoted to intensive post-

graduate instruction and conducted by the leading clinical teachers of the United States. The programs will be eminently practical and of particular interest to the general practitioner.

The society will especially appeal to the physicians of Illinois, Missouri, and Iowa, and the annual meetings will be held in cities on the Mississippi River in these states. The first meeting will be held in Quincy during the month of October or November and will be a three-day session. The society has already been approved by the Adams County Medical Society of Illinois (Quincy), and the Marion-Ralls County Medical Society of Missouri (Hannibal).

The control of the organization is in the hands of a Board of Directors, consisting of one director to each 1,000 physicians in the states of Illinois, Missouri, and Iowa. The officers elected to serve for 1935 are:

President—Dr. Walter Stevenson, Quincy, Illinois.

President-Elect—Dr. H. B. Goodrich, Hannibal, Missouri.

1st Vice-Pres.—Dr. H. P. Coleman, Canton, Illinois.

2nd Vice-Pres.—Dr. E. A. Cunningham, Louisiana, Missouri.

3rd Vice-Pres.—Dr. Wm. Rankin, Keokuk, Iowa.

Secretary-Treas.—Dr. Harold Swanberg, Quincy, Illinois.

An Advisory Committee, including the following prominent physicians, has been elected by the Board of Directors:

Dr. Walter Bierring of Des Moines, President of the A. M. A.

Dr. Allen Pusey of Chicago, Dr. A. D. Bevan of Chicago, Dr. Malcolm Harris of Chicago, all Past-Presidents of the A. M. A.

Dr. Charles B. Reed of Chicago, President-Elect of the Illinois State Medical Society.

Dr. E. Lee Miller of Kansas City, President-Elect of the Missouri State Medical Society.

Dr. Thomas A. Burcham of Des Moines, President-Elect of the Iowa State Medical Society.

Membership in the society will be open to all ethical physicians, it being a prerequisite that all members hold membership in their respective state medical societies. In order to get started quickly, the Board of Directors has elected to place the membership fee and dues for the first year at only \$3.00 and life membership at \$25.00, provided these are paid before the time of the annual meeting. Charter membership will close July 1, 1935. Members will attend the annual meeting without payment of a registration fee.

The Board of Directors is desirous of securing one thousands physicians as charter members in order to provide a caliber of program at the Quincy meeting that has never been equaled in this section of the Mississippi Valley. Ethical physicians interested in the new organization are urged to communicate with Harold Swanberg, M. D., Secretary-Treasurer, 211-224 W. C. U. Bldg., Quincy, Illinois.

AMERICAN MEDICAL GOLFERS MEET JUNE 10, ATLANTIC CITY

The twenty-first annual tournament of the American Medical Golfing Association will be held at the Northfield Country Club, Atlantic City, Monday, June 10. Thirty-six hole competition will be played for the seventy prizes offered in nine events. This includes the championship event, which has as its major prize the famous Will Walter Trophy, awarded since 1923 for low gross thirty-six holes. This trophy, designed by Edgar Millar and executed by the Cellini Shop, Evanston, Ill., symbolizes the evolution of medicine.

HANDLES DEPICT HISTORY OF MEDICINE

The first handle depicts the age of primitive ignorance, with shaman witch doctor, spells and the invocation of nature gods to cure ailing mankind, from antiquity to 500 B. C. The second handle shows the age of Greek thinkers, bearing the serpents symbolic of Aesculapius, god of medicine—an age of thought and research, from 500 B. C. to 640 A. D. The third handle represents the age of medieval superstition from 640 A. D. to 1500 A. D., with an astrologer, the physician common to the dark ages. The fire of incantation rises behind the figure as he traces a cabalistic sign in the air. The fourth handle depicts the age of modern medical research, from the Renaissance to modern time, with increasing light spreading from a figure symbolic of an enlarging vision.

Winners since the cup was placed in competition have been Drs. E. A. Seaforth, San Francisco, 1923; George McKee, Pittsburgh, 1924; Homer Nicoll, Chicago, 1925; S. M. Hill, Dallas, Texas, 1926; George McKee in 1927; Walter Shelden, Rochester, Minn., 1928; John Loudon, Yakima, Wash., 1929 and 1930; George McKee, 1931; S. M. Hill, 1932, Mark Bach, Milwaukee, 1933; and John Loudon, Yakima, Wash., 1934 (third time).

OTHER EVENTS—SEVENTY PRIZES

Other Events and Trophies include the Association Handicap Championship, 36 holes net, with The Detroit Trophy; the Championship Flight, first gross 36 holes, with the St. Louis Trophy; the Championship Flight, first net, 36 holes, the President's Trophy; the 18 Hole Gross Championship, with The Golden State Trophy; the 18 Hole Handicap Championship, with The Ben Thomas Trophy; the Maturity Event, with the Minneapolis Trophy; the "Oldguard" Championship, with The Wendell Phillips Trophy; the Kickers Handicap, with The Wisconsin Trophy.

A. M. G. A. HAS 1100 MEMBERS

Dr. Charles Lukens of Toledo is president; Drs. C. H. Henninger of Pittsburgh, and John B. Morgan of Cleveland, are vice presidents of the American Medical Golfing Association, which has a total membership of approximately 1100, representing every state in the Union. All male Fellows of the American Medical Association are eligible to membership. A cordial invitation is extended to every medical golfer

to write the executive secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. An enjoyable day on June 10 will be the result.

CANADIAN PHYSICIANS INVITED

A special invitation has been extended by the American Medical Golfing Association to the Canadian Medical Association, which meets in joint session with the American Medical Association at Atlantic City, this year, so that golfing physicians from the Dominion may join with the medical golfers of the United States for a day of enjoyment in Atlantic City.

The A. M. G. A.'s invitation to the Canadian Medical Association to hold a joint tournament this year has been accepted by Dr. T. C. Routley, General Secretary of the C. M. A., who replied: "I am sure our Canadian colleagues will appreciate highly the honour you have done them in asking them to be present at the Twenty-First Annual Tournament of the American Medical Golfing Association."

TWO ADDITIONAL EVENTS

Two additional events will be added to the day's already generous program of nine events and seventy prizes:

1. The International Event, featuring the "President's Cup," a new trophy presented by Dr. Chas. Lukens of Toledo, and nine other American prizes for our Canadian friends to carry back home.

2. The Canadian Event, featuring the "Ontario Cup," or championship trophy, and the other prizes of the Canadian Medical Association.

MANY FOURSOMES OF CANADIANS AND AMERICANS

Many American golfers having medical friends in Canada are arranging matches for the international medical golf tournament of June 10th. It is expected that 200 players will tee off between 6:00 a. m. and 3:00 p. m., in this 36 hole and 18 hole competition. The Atlantic City Committee has arranged that free buses will leave from Haddon Hall; from the Shelburne Hotel; and from the Ambassador Hotel at 8:30 a. m., and will return from Northfield in the evening at 10:30 p. m. Dinner at 7:00 p. m. with Dr. Frank A. Kelly of Detroit as toastmaster, will be followed by distribution of trophies and prizes by Dr. Walt P. Conaway, Chairman of the Atlantic City Golf Committee.

For entry blanks, write Bill Burns, Executive Secretary, 4421 Woodward Avenue, Detroit.

PHYSICIANS WHO HAVE PATIENTS WITH HEARING PROBLEMS

Physicians, who have patients with hearing problems and wish to have them relax and enjoy pleasant programs may secure complimentary tickets for the Sonotone Theatre, 66 East Van Buren Street. The theatre is completely equipped with hearing apparatus, and therefore guests may sit in any part of the house with their accompanied friends without the least annoyance or embarrassment. Upon the receipt of a

self addressed and stamped envelope complimentary tickets will be promptly sent. Write to Mrs. Louis Pelton, care Chicago Woman's Aid, 185 North Wabash Avenue, Chicago.

PRESCRIPTION WRITING A LOST ART

J. J. Gill, Ph.G., M.D., Chairman of Committee on U. S. P., N. F. & N. N. R., Chicago Medical Society, says:

A remark, "Prescription writing is practically a lost art," is credited to the chairman of a committee on pharmacy of Kings County Medical Society of New York. To this statement I wish to take exception. It is my opinion that the art of prescribing has not been lost, but the function is now transferred to the manufacturing pharmaceutical houses.

The average proprietary preparation is a very simple mixture of ordinary drugs combined to please the eye and not to offend the taste. The name is generally suggestive of either the composition or its application while the literature presented to physicians appears to be convincing and authoritative. Convincing because dogmatic statements are used. Authoritative by the use of quotations from eminent clinicians concerning the ingredients but not to that particular product.

One of our very ethical drug firms some time ago detailed the medical profession with a new and effective galenical preparation containing a haloid derivative of coal-tar product with specific and almost magic properties in the treatment of diseases of the respiratory tract.

The euphonious name, attractive label, alluring appearance of the preparation and a formidable array of references, produced in a short time a tremendous demand for the mostrum which consisted of a rich spicy syrup containing Ammonium Chloride. The pharmacist and ultimately the patient paid dearly for haloid derivative chlorine and for ammonia, a product of coal-tar.

SEASONABLE SUGGESTIONS FOR ETHICAL PRESCRIPTIONS ACCEPTED BY COMMITTEE ON U.S.P., N.F., & N.N.R. AS FOLLOWS

The quantities used in the following prescriptions are given merely as a guide.

The physician is not expected to adhere to these quantities any more than his experience and judgment dictate.

BITTER TONICS, SEASONABLE ALL N.F.V.

R

Elix. Ferr. Quin. et Strych..... 60.
Elixir Pepsin Compound..... 30
M. et Sig: Teaspoonful in water before meals.

R

Tinct. Nux Vom. 1.5
Elix. Gentian. Glycerin qs..... 90.
M. et Sig: Teaspoonful in water before meals.

R

Strychnia. Sulph.02
Elix. Glycerophos. Co..... 90.
M. et ft sol.

Sig: Teaspoonful in water before meals.

℞	
Strychnia. Sulph. ....	.02
Elix. Calc. et Sod. Glycerophos.	90.
M. et ft sol.	
Sig: Teaspoonful in water before meals.	

DIURETICS

℞	
Elix. Buchu. Junip et Pot. Acet.	90.
N.F.V.	
Sig: Teaspoonful in water 4 or 5 times daily.	

℞	
Elix. Aletrid. Co.	90.
N.F.V.	
Sig: Teaspoonful 4 times daily.	

℞	
Elix. Hydrast. Co.	120.
N.F.V.	
Sig: Teaspoonful 4 times daily.	

℞	
Elix. Sabal et Santal. Co.	90.
N.F.V.	
Sig: Teaspoonful 4 or 5 times daily.	

℞	
Elix. Hydrang et Lith.	90.
N.F.V.	
Sig: Teaspoonful 4 times daily.	

LINIMENTS FOR RELIEF IN RHEUMATIC CONDITIONS

℞	
Lin. Aconit. et Chlorof.	120.
N.F.V.	
Sig: Apply freely. Massage gently.	

℞	
Lin. Sinap. Co.	90.
N.F.V.	
Sig: Apply locally. Massage gently.	

PRESCRIBING DRUGS FOR MEDICAL RELIEF PATIENTS

The following from the *Milwaukee Medical Journal*, September, 1934, is very timely because of the world-wide depression.

A schedule of drug prices has been submitted to the Society by the Milwaukee County Pharmacists' Association. It indicates to the physician participating in the Medical Relief Program how he can keep within the regulations providing that no prescription be written exceeding in cost fifty cents. In the event more costly prescriptions are written, special authorization must be obtained from the Milwaukee County Dispensary. Physicians in these instances will be contacted to determine the necessity for prescribing expensive drugs.

It will be noted in the schedule which follows that the cost of U. S. P. and N. F. preparations are compared with charges for proprietary medicines, indicating the wide difference in costs. Physicians are required under the rules governing the Medical Relief Program to prescribe U. S. P. and N. F. preparations only.

It is recommended to Society members that the following schedule be kept for reference purposes:

PROTECTED NAMES

Atophan	\$2.75 oz.
Aspirin .....	.85 oz.
Diuretin	1.80 oz.
Duotal	1.07 oz.
Luminal	6.20 oz.
Phenacetin .....	.63 oz.
Urotropin .....	.63 oz.
Veronal	3.00 oz.
Argyrol	1.50 oz.
Pyramidon .....	.82
Xenoform .....	.75
Empirin	2.70 lb.
Theominol Tabs. ....	.03 ea.
Citrocarbonate .....	.67¼ lb.
Mistol	2 oz. .45
Peacock's Bromides	8 oz. .75
Gardner's Syr. H. I.	1.40 pt.
Tyree's Antiseptic Powder.	2 oz. .30
Tab. Empirin Comp.	1.20
Resinol Ointment	3½ oz. .80
Iodex .....	.38 oz.
Ovoferrin	11 oz. .75
Tongaline	4 oz. 1.50
Listerine	14 oz. .50
Glycothymoline	14 oz. .84
Pertussin .....	...
Comp. Menthol Inunction .....	...
Lysol	16 oz. .75
Bromidia	4 oz. .80
Hayden's Viburnum Comp.	2.17 pt.
Eskay's Neurophosp.	1.34 pt.
Sanmetto	4 oz. 1.50

NON-PROTECTED NAMES

Cinchophen	\$0.40 oz.
Acetosalicic Acid .....	.15 oz.
Theobrom. Sod. Salicyl. ....	.30 oz.
Guaicol Carbon. ....	.28 oz.
Phenobarbitol .....	.68 oz.
Acetpheneditine .....	.20 oz.
Hexamethyltetramine (Methenamine) ....	.13 oz.
Barbitol .....	.60 oz.
Argento Protein Mitis. ....	.47 oz.
Amidopyrine .....	.60 oz.
Bism. Tribromphenate .....	.48
Acetosalicic Acid	1.05 lb.
gr. 5	grs. ½
Theobromine c Pheno Barbitol. ....	.01½ ea.
Alkaline Salts eff. ....	.32¼ lb.
Aromatic Spray N. F. ....	.20
Syrup Bromidorum N. F.	16 oz. .86
Syr. H. I.	N. F. .50 pt.
Pulv. Antisepticus N. F. ....	.50 lb.
Tab. Acetosalicic Acid Comp. ....	.86
Comp. Oint. Resinol N. F.	1.75 lb.
Stainless Iodine Oint. N. F.	1.35 lb.
Liq. Ferr. Albumin. ....	.60 pt.
Elix. Tonga and Salicyl. N. F.	1.35 pt.
Liq. Antiseptic N. F. ....	.25 pt.
Liq. Antiseptic Aromat N. F. ....	.40 pt.
Syr. Thyme Comp. N. F. ....	.90 pt.

Analgesic Balm .....	...
Liq. Cresolis Comp. U. S.	16 oz. .43
Liq. Chloral et Pot Brom. N. F.	16 oz. .83
Liq. Viburnum Comp. N. F.	1.15 pt.
Alk. Glycerophos Comp. N. F. ....	.75 pt.
Elix. Saw Palmetto Comp. N. F.	1.00 pt.

It is suggested that Syr. White Pine Comp. N. F., be used in place of much more expensive Cheracol (11c oz.), Sedatole (7c oz.), Syr. Cocciliana Comp. (6c oz.). The pharmacist can buy Syr. White Pine Comp. for about 80c a pt., but can manufacture it for about one-half that cost. It will cover the bitter taste of Codeine equally well. When prescribing Codeine and Ammom. Chloride as active ingredients, Syr. Licorice, Syr. Tolu, Syr. Wild Cherry, Syr. Raspberry or Syr. Marshmallow should be used as a vehicle to cut the cost of the prescription to emergency price limit.

Peptenzyme Elix.	\$1.25 pt.
Caripeptic Liquid	1.20 pt.
Panpeptic Elix.	
Elix. Lactopeptine or almost every other	
Enzyme preparation.	
Comp. Elix. of Pepsin.....	.60 pt.

Can be manufactured by the pharmacist for about 45c a pt. It is equally useful as a vehicle to many protected names.

When expensive alcoholic media are used in Elix. Terpine Hydrate, have the pharmacist emulsify the chemical with Gum Arabic and save the cost of the treble stamped alcohol.

Likewise in Petrolagar, Agarol, and the host of other mineral oil preparations, emulsify with Gum Tragacanth and add the Agar Agar. The medical profession has come back to Sol. Iron Manganese copper, or Sol. Iron and Ammonium Citrate to replace the expensive Liver Extract.

Replace Viosterol with Cod Liver Oil U. S. P. for Medical Relief patients. It should be emphasized that Viosterol is not therapeutically equivalent to Cod Liver Oil, since it supplies no Vitamin A which is just as important a component of Cod Liver Oil as in Vitamin D. Flavor the Cod Liver Oil with Oil of Anise, Peppermint, Wintergreen, or any other combination.

Pill Vegetable Cathartic mild, an old U. S. P. preparation, is suggested in place of Caroid and Bile Salts and similar proprietary and patents in county relief work.

Siedlitz Powders U. S. P. were patented in London in 1783, adopted in U. S. P. in 1860. It has a definite dose of Rochell's Salts in effervescent form, very pleasant to administer. All the effervescent preparations on the market are a copy of Siedlitz Powder and are more expensive.

Pharmacists request that physicians allow them to cut the quantity of the prescriptions so that the cost will not exceed 50c.

If, however, the doctor insists on his original quantity, he should underscore the quantity. He must keep in mind, however, that only U. S. P. and N. F. preparations are allowed by the Federal Government and

must be prescribed! Cooperate closely with your pharmacist. He can suggest U. S. P. and N. F. preparations to you.

CENTRAL STATES SOCIETY OF INDUSTRIAL MEDICINE AND SURGERY ANNUAL MEETING ROCKFORD, ILLINOIS—HOTEL FAUST

Tuesday, May 21, 1935

All day session, Fracture Symposium, Governor
Executive Session, evening

PROGRAM

Frederick W. Slobe, Chairman
J. S. Lundholm, Rockford, Chairman on Arrangements

9:00 to 12:00 A. M.

1. Fracture of the Femur (motion pictures).....
.....Ralph M. Carter
2. General Fractures.....William R. Cubbins
3. Fractures of the Spine.....Carlo Scuderi
4. Fractures of the Neck of the Femur.....
.....George Apfelbach
5. Multiple Fracture of Pelvis, Complicated by Hip
Dislocation.....C. W. Hopkins
6. Business and Announcements.....
.....Apfelbach and Hammond

1:30 to 5:00 P. M.

1. Injuries of the Brain and Spinal Cord.....
.....Adrien Verbrugghen
DiscussionC. W. Hopkins
2. Occupational Disease Hazards....C. O. Sappington
3. Operative Treatment of Arthritis (motion pictures).....Maurice Bernstein
4. Injection Treatment of Hernia..Frederick W. Slobe
5. Business and Announcements.....
.....Apfelbach and Hammond

Our meeting runs concomitantly with the Illinois State Medical Convention, Tuesday, Wednesday and Thursday.

Anticipating a good attendance.

GEORGE L. APFELBACH, FRANK P. HAMMOND,
President. Secretary-Treasurer.

HE WHO GETS SAT ON

He made a run around the end,
Was tackled from the rear,
The right guard sat upon his neck,
The fullback on his ear,
The center sat upon his back,
Two ends upon his chest,
The quarter and the halfback then
Sat down on him to rest.
The left guard sat upon his head,
Two tacklers on his face,
The coroner was then called in
To sit upon his case.

—Beanpot.

Original Articles

MALIGNANT TERTIAN MALARIA.

Report of a Small Epidemic

HARRY J. IRELAND, M. D., AND

MILTON G. BOHRD, M. D.

PEORIA, ILL.

Introduction: In the last generation, malaria in central and northern Illinois has receded from a place as one of the most common of diseases to one of relative infrequency. When it does occur it is due to infection with the *Plasmodium vivax* which causes a type that has earned for itself the designation of benign tertian malaria. Deaths in the acute stage of this type of the disease are exceedingly rare, even in markedly malarious areas, so that only a handful of cases have been reported. As a matter of fact many malariologists deny the existence of pernicious *P. vivax* infections.¹ There are on record reports of only five necropsies in malarias of the tertian type.² The occurrence of eight fatal cases in Peoria within five months, with six necropsies, justifies a close study of this epidemic.

It has been said that "Malarial infections may be said to be of pernicious character when symptoms arise of such gravity as to threaten life itself, as almost to presage a fatal outcome."³ In nearly every case this type of malaria is due to the estivoautumnal parasite (*P. praecox* or *P. falciparum*). There is, however, great confusion in the literature in the designation of the various types of malaria. Thus pernicious estivoautumnal malaria is frequently referred to as malignant tertian malaria or subtertian malaria. For the sake of clarity, therefore, we shall refer to our cases as infections with *P. vivax*.

From June 26 to Oct. 31, 1933, there were admitted to the St. Francis Hospital 26 cases of malaria. It was our impression that this was an unusually large number and that we were in the midst of a small epidemic of this disease. At first thought this seems to be an easy matter to determine, but actually it is by no means simple. Malaria is a reportable disease, but since it is not contagious, physicians frequently neglect to report it and reliable statistics are unavail-

able. In this year, for instance, only nine cases were reported from Peoria County to the State Department of Public Health, although 26 cases were admitted to the St. Francis Hospital alone, one of three hospitals in the county. In 1930 there were 26 cases in this same hospital, but the State Department of Public Health records no cases from the entire county for this year.

A rough estimate of the incidence may perhaps be made from the admissions for malaria in the St. Francis Hospital. In 1930 there were 26 admissions; in 1931, thirteen. With these exceptions the number of cases from 1924 to 1932 was between zero and seven per year, with a yearly average of three. It is apparent, then, that in 1933 there were as many cases as in the peak year of 1930, but about eight times as many as in an average year.

Among these 26 patients there were five deaths, all in the acute state. This is an unprecedented mortality in the malaria of the temperate zones, especially since all the cases were due to infection with the *Plasmodium vivax*, the so-called benign tertian type. In the 63 cases in St. Francis Hospital in the nine preceding years there were no deaths. It has frequently been stated in the literature that this type of malaria is never fatal in the acute stage,^{1, 3} and even those who admit the possibility speak of the great rarity of such occurrences.⁴ Of these five cases four came to necropsy. In addition we were able to study the brain of one other case of malaria dying in another Peoria hospital.

While these cases were coming to the hospital, two patients with general paresis were inoculated intravenously with blood from non-fatal and seemingly mild cases of malaria. Both developed malaria and both died. One of these cases also came to necropsy. We have been unable to find a well authenticated case of death due to the malaria itself if the *P. vivax* was used for therapeutic inoculation.

In this total of 29 cases, the type of malaria was determined by examination of blood smears. In all of them the parasite was the *P. vivax*. The red cells containing the parasites were larger than the uninvaded cells and much paler. In most of the cases Schüffner's granules were found in at least one examination. The segmented forms showed twelve to twenty segments. Crescents were never seen. In the fatal cases

Read before Section on Public Health at Annual Meeting of Illinois State Medical Society, at Springfield, May 16, 1934.

crescents were not found in smears from the bone marrow or the splenic pulp.

In our series there were 20 cases in which the infection occurred in males, and in addition the two inoculated cases were both males. This preponderance of males is noted in all reports. The youngest patient was eighteen months old, the oldest 76 years. Among the seven women, the oldest was 40. Seven of our patients were under ten years of age. It has been claimed⁵ that children are especially susceptible to malaria because of the thinness of their skin, their tendency to sleep uncovered, and their habits at play. In three instances, malaria occurred in the same family, two brothers, a mother and son, and a father and son. In the latter case both were fatal.

Figure 1 shows on a map of Peoria and its environs the residences of our cases. It will be noted that they lived close to the Illinois River on both sides. Especially noteworthy is the group which occurred in East Peoria, where there are many swamp lands. Three of the cases in which lines are drawn toward the river gave a history of sojourn on the river.

Clinically these cases differed but little from those described in any standard book on the disease. Complete clinical histories were obtainable in but 21 of the total of the 27 non-inoculated cases.

In the non-fatal cases:

- 16 complained of chills and fever
- 11 complained of nausea and vomiting
- 11 complained of headache—usually dull and frontal in type
- 4 complained of lower lumbar pain
- 5 complained of pain in the epigastrium
- 1 each complained of diarrhea, dizziness, hiccoughs and generalized aches
- 1, a child, had convulsions.

Of the fatal cases:

- 4 complained of chills and fever
- 3 had nausea and vomiting
- 3 had diarrhea
- 2 had generalized aches
- 1 each had headaches, low lumbar pain, dizziness, convulsions, bloating and loss of contact with surroundings.

The temperature curves in those few cases allowed to continue for a time without specific medication, showed in every case the single or double so-called benign tertian curve, with a preponderance of the double type of curve i. e., chill and rise of temperature daily at about the

same hour. Temperatures of 105° to 106° were not unusual even in the non-fatal cases, especially in the children, but one adult ran a persistently subnormal temperature throughout his stay in the hospital.

Physical Examination: Showed in almost every case a marked prostration out of all proportion to the temperature, and but little else. In only two cases could an enlarged spleen be felt by abdominal palpation, but in several others an increased area of splenic dullness to percussion could be made out posteriorly.

The blood pressure was uniformly low, varying from 110/24 to 68/56, with the fatal cases showing the lowest readings. Four fatal cases were of the definite comatose type of pernicious malaria which various authors⁶ have stated occurs only in the estivoautumnal type. The so-called algid type with its profound prostration and gastrointestinal disturbances, we found in three fatal cases.

The blood findings in this group were variable. In the non-fatal group only four had a hemoglobin below 75% and five showed a red blood count of less than 4,000,000 per cmm. In this group the white blood counts were almost uniformly low, fifteen being below 7,500 per cmm. with a high of 12,800 per cmm. and a low of 3,900 per cmm. The differential count showed an eosinophilia of six per cent. in one instance, and one to two per cent. of eosinophils was rather frequent. Five cases showed an increase of mononuclear cells, amounting to fifteen per cent. in one instance.

In the four fatal cases in which a complete blood picture was obtained, the red count varied from 2,980,000 to 5,380,000 per cmm. with a hemoglobin from 60% to 106% as measured by the Sahli's scale. In two of these cases the white blood counts were above 10,000, with a high of 20,000 and a low of 5,400. Two of these cases also showed an increase of the mononuclears and three showed an eosinophilia.

The urine in these cases showed no characteristic peculiarities except that two of the fatal cases showed an albuminuria with granular and hyalin casts.

In a limited series such as this, conclusions as to the efficacy of any particular type of therapy must necessarily be guarded. Quinine sulphate by mouth in relatively large doses was the

most common therapeutic agent, being used in seventeen cases, three of which proved fatal. Alkyl-amino - alkyl - amino - acridine (atabrine) either alone or in conjunction with quinine by mouth was used in nine cases, two of which were fatal (the inoculated cases). One case entered in extremis and received no therapy. One, of a definitely comatose type, received intravenous quinine and neosalvarsan as well as atabrine and plasmochin (a quinoline derivative) by mouth, but relapsed shortly after being discharged from the hospital to return after three days in fatal coma.

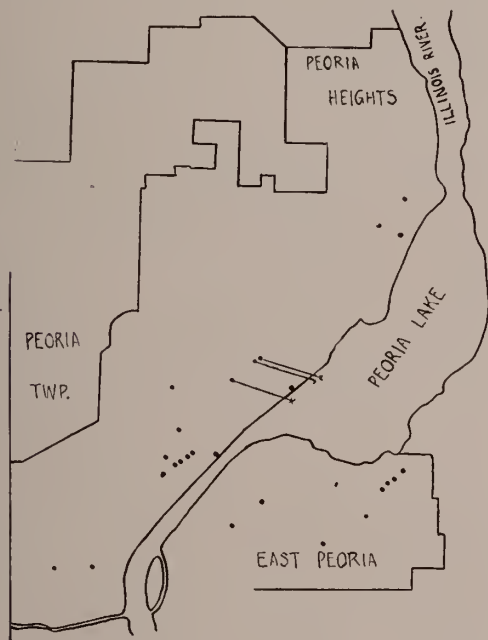


Fig. 1. Map of Peoria and its environs. The dots show the residences of the cases of spontaneous malaria. Notice that they are, with few exceptions, close to the river. The 3 cases marked X give a history of sojourn on the river.

According to the literature⁷ intravenous quinine is the accepted type of treatment in those cases unable to take the drug by mouth or where the symptoms suggest an overwhelming infection by the parasites. In only such cases did we resort to this type of therapy.

A followup of the non-fatal cases was not possible and hence little can be said as to their ultimate course after leaving the hospital.

The pathology observed corresponded exactly with that described in the pernicious type of estivoautumnal and in the few reported cases of fatal tertian malaria. Grossly, the most char-

acteristic change was in the color of the organs. The spleen and liver were deep chocolate color, the consistency usually softened, and the normal markings gone. The lungs in some of the cases were also slate-gray in appearance. The brains were heavy and all of them presented an increase in intrameningeal fluid and a marked hyperemia. In addition the parenchyma was of a peculiar slate-gray color.

The reason for this color was seen in the presence in all of these organs of surprisingly large amounts of a deep brown, almost black pigment, the malaria pigment or so-called hemozoin. Parasites were found in the spleens of most of the cases, but rarely in the other organs, with the exception of the brain.

The changes in the brain were of three different types which can possibly be arranged in a series. In the most acute cases there was merely an intense edema which affected the brain stem as well as the cerebral cortex. In these cases, only occasional malarial pigment granules were to be found in the brain. The case of inoculated malaria which came to necropsy also showed this change. In the next group of cases, the largest number, there were found in the brain huge numbers of parasites. The smaller blood vessels, especially the capillaries of the parenchyma, were markedly distended and crowded with red cells. Each red cell contained a plasmodium and usually abundant pigment. There was no fibrin, so that these were not really thrombi but rather aggregations of parasite-filled erythrocytes. In one case no parasites were seen but there was abundant pigment. The necropsy in this case was not done until about eight hours after death, so that it is possible that the parasites had disintegrated. Frequently there were small perivascular hemorrhages. The glia nodules said by Dürk and others to be typical of malarial encephalitis, were not seen. In one case the final stage of this process could be observed. This was in a man who had recovered from the coma and had a recurrence three weeks later. In addition to the perivascular hemorrhages, there were large cuffs of lymphoid cells, sometimes still mixed with red cells, in the adventitial spaces of the intracerebral blood vessels.

The pathology of the brain, then, can take the following forms depending upon the intensity

and the duration of the infection: 1. There may be a toxic edema; 2. There may be a mechanical interference with the circulation by the blocking of numerous capillaries by plasmodium-filled erythrocytes or by pigment; 3. Intracerebral petechiae may be the result of either the toxemia, or the mechanical obstruction in cerebral circulation, or perhaps of both; 4. If the case should recover from this cerebral involvement, then a true encephalitis may ensue. This undoubtedly explains the numerous possible malarial cerebral sequelae which have been reported.

In attempting an explanation for the increased incidence of malaria in Peoria and vicinity during 1933 we were faced with several factors, some explainable, some not so easy of explanation.

In this year the flood level of the Illinois River was the highest since 1844, leading to an overflow of the river with the formation of many residual pools which, due to economic conditions, were left untreated. Breeding conditions for the mosquitoes were further enhanced by a period of very hot and dry weather which followed the river's overflow. This rendered the pools stagnant and formed perfect *Anopheles* hatcheries. This is in accordance with the findings of others⁸ and has been recognized as an etiological factor since the time of the Romans and the inundations of the Tiber during this period, which led to subsequent increased malarial incidence.

In this connection it is interesting to note that the majority of our cases occurred in districts which lay in immediate proximity to the river on either side and that they were from the lowland district. This latter observation of increased incidence in lowland regions, even though they be relatively free of mosquito breeding sites, has been referred to by other investigators.⁹

Faust¹⁰ believes that the malarial parasite is incapable of producing cyclic changes in the death rate. He postulates, however, that without doubt poverty and hard times do increase malarial mortality, first, by lowering the patients' nutrition; second, by lessening his chances for proper medical attention and therapy; and third, by increasing his chances for exposure to infection. In accordance with this it is to be noted that the majority of our patients received county medical aid.

The great rarity of truly pernicious tertian

malaria and the sudden appearance of a considerable number of fatal cases of this type indicate to us that in addition to an increased incidence there must be a true increase in the virulence of the parasite. The deaths in the inoculated cases further substantiate this view. What may cause this increase in virulence of the parasite is unknown, but the reasons are no doubt similar to those which cause a sudden increase in virulence in other infections. Repeated passage of parasites through many hosts in inoculated malaria has at times caused an increase in the severity of the disease.

In spite of the thousands of cases of inoculated malaria which have been reported without fatalities³ our experience indicates that certain definite precautions must be taken if blood from spontaneous cases of malaria is to be used therapeutically. It is to be remembered that we used for inoculation blood from cases which did not appear unduly severe and which recovered promptly under specific therapy. It would seem, therefore, that the deciding factor is not the severity of the individual case but the virulence of the epidemic; and that during a severe epidemic it would be safer to obtain blood for inoculation from other than local cases or better from a known strain of inoculated malaria. The experiments now being carried out with parasites obtained directly from the mosquito probably offer in the future a safe and controllable inoculation method which, if successful, should in the light of our experience, supersede the use of blood from spontaneous cases.

In the South, malaria is still a major Public Health problem. It must be realized, however, that in the more northern states, malaria has by no means disappeared, in spite of several authors¹¹ who have written of the approaching extinction of the disease.⁸ In Illinois there were 2000 cases reported in the last seven years. Fifty years ago Illinois was listed as one of the foci of pernicious malaria.¹² The epidemic we are reporting indicates the possibility that this form may again become prevalent. Continued vigilance in malaria prophylaxis in Illinois and states similarly situated is therefore decidedly indicated.

Summary and Conclusions: A report of a small epidemic of 27 cases of tertian malaria (*P. vivax*) with six deaths. In addition two deaths

in therapeutic malaria inoculated with blood from non-fatal cases. From our study the following conclusions seem warranted:

1. The *Plasmodium vivax* is capable of causing a pernicious type of malaria which clinically and pathologically is almost identical with that produced by the parasite of estivoautumnal malaria (*P. falciparum*).
2. Death in the acute stage of malaria is usually attributable to cerebral involvement in the form of a marked edema, a mechanical blockade of capillaries by parasites or pigment, or a true encephalitis.
3. The epidemic occurred after the sequence of overflow of the river followed by intense heat.
4. There is a need for continued vigilance in malaria prophylaxis in Illinois.

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DISCUSSION

Dr. Lloyd Arnold, Chicago: This is an extremely difficult paper to discuss. I have had some experience with malaria around New Orleans and also at Vanderbilt. The estivoautumnal type found so much around New Orleans was imported from Central America. As to the pathology, I don't know how to discuss that phase of it. Unusually there is an equilibrium established between the host and parasite. There is a struggle back and forth and there is finally an equilibrium established. We have various ways of measuring this equilibrium. But unless we presuppose an importation even though the mosquito environment was ideal for reproduction of the insect, it is very difficult to comprehend how there could suddenly be pushed on to the picture a virulent type of malaria that has all of the virulence of the estivoautumnal type.

Are you familiar at all, Dr. McShane, with this epidemic?

Dr. McShane: No; I have no record of it.

Dr. Arnold: Were there any importations from Central America or Mexico that could account for it?

Dr. Ireland: None that I know of.

Dr. Arnold: Of course, the pathology is excellent. The epidemiology is too hazy. I think it is quite important, inasmuch as what has occurred there, that one would expect that to be basically an importation, epidemiologically; because you would hardly reason that a parasite that had adapted itself between the mosquito and host with three or four or five cases per year as he mentioned, and would then suddenly present a change of picture entirely, without something added to the whole complication from without. That would hardly be logical as an endogenous process. There is nothing I can add to the discussion. Have you anything to add?

Dr. Bohrod: No.

Dr. J. J. McShane, Springfield, Ill.: I would like to ask Dr. Ireland if he knows the exact date when these cases occurred and to know if there is any tie-up from the standpoint of our cases when we had our encephalitis in the State during late summer and fall of 1933. Encephalitis cases were reported from a number of counties in southern Illinois and central Illinois and a number of cases were reported in and around Rushville; because some of these cases relapsed and died two or three weeks later. I wonder if Dr. Ireland has a record of the number of cases and deaths that he reported.

Mr. B. K. Richardson, Springfield, Ill.: As far as the epidemic is concerned, without reference to the fatality rate, it is scarcely unique. We had here in Springfield three or four years ago an outbreak that possibly was of the same magnitude, and there was one in Decatur, and others further south. The Decatur people thought that theirs had been imported by automobile traffic back and forth. As far as I know, the epidemiology of the Springfield outbreak was not clarified. In that respect, the Peoria outbreak would

not be exactly unique in Central Illinois. We have them every once in a while.

Dr. Arnold: Not the death rate.

Mr. Richardson: No.

Dr. McShane: Drs. Bohrod and Ireland are to be congratulated on the work that they have done. This outbreak is unique in this part of the State. I would be interested in getting a copy of the paper.

Dr. Ireland: I have nothing further to say.

PYELOCYSTITIS:

Diphasic Strains of Bacteria Appearing in the Urine

CLARENCE C. SAELHOF, M. D.

CHICAGO

Hadley¹ predicts: "the time will soon arrive when, in discussing the nature of bacterial cultures isolated from infected tissues or maintained in laboratory stocks, it will not be sufficient merely to name the organism."

Rosenow² describes strains of streptococci that show all gradations in morphology from perfectly round cocci to straight and clubbed bacilli. Faith P. Hadley³ gives an excellent review on the dissociation of streptococci.

Jensen and Morton⁴ describe in detail the diphtheroid phase of streptococci obtained from the urine of a patient suffering from a cystitis.

The work reported contains the experimental phases of organisms obtained in culture from the catheterized urine of the bladder and kidneys.

Case 1. A man, 32 years of age, had been treated during the past seven years for an intractable cystitis. With repeated lavages of the bladder with various antiseptics and associated vaccine therapy, also a suprapubic cystotomy (1929), little permanent or appreciable relief had been obtained.

Under caudal anesthesia, the urethra easily admitted a No. 22 French catheterizing cystoscope. The bladder tolerated approximately 250 cc. of fluid: the wall of the bladder was markedly hemorrhagic and thickened with punctate ulcers of varying size situated about the right ureteral orifice. Number 6 ureteral catheters were passed easily and specimens of urine obtained from each kidney. Tests of renal function by means of indigo carmine and phenolsulphonphthalein gave normal results. Retrograde and intravenous pyelograms presented normal appearances. At this time, vesical irrigations and instillations were instituted.

Experimental Data: Stains by Gram's method of the centrifugate of urine from the bladder and the left ureter showed numerous diphtheroids and atypical streptococci; the centrifugate of the urine from the right

ureter showed no organisms. Appropriately stained smears and guinea pig inoculation of the urine from the left ureter failed to reveal any tubercle bacilli. Plates of blood and litmus lactose agar inoculated from the centrifugate of urine from the bladder and the left ureter gave surface growths of colonies of a diphtheroid organism. Occasional greening of the medium around colonies was seen on both chocolate blood agar and hemoglobin blood agar. On repeated transplants of typical colonies on blood agar, the predominant colonial form was rough, granular with irregular edges, and cohesive. Under the binocular colony microscope, the surface was flattened, granular and convoluted. Transplants of these colonies into ascites phosphate broth gave a pure culture of streptococci. Growth of the centrifugate in ascites phosphate broth, dextrose broth and blood broth gave variable sized chains of streptococci. Repeated transplants in liquid mediums showed only streptococcal forms.

Washings in saline solution of the original plates with diphtheroid colonies were injected intravenously into rabbits in amounts of 10 cc., but without any effects. Rabbits injected with 10 cc. of the streptococcal broth developed inflammation of both kidneys and occasionally also the wall of the bladder. Cultures of the urine gave streptococcal forms on liquid medium and diphtheroid forms on solid medium.

Both the diphtheroid and streptococcal forms gave no evidence of serologic specificity.

A vaccine was made of the two types isolated and injected intradermally twice weekly for four months; during this period the opsonic index was unaltered and no relief obtained. Blood cultures were negative on three different occasions.

Treatment: Due to the failure of treatment, the left kidney and part of the left ureter were removed. Microscopical sections showed active pyelonephritis with occasional bacterial masses. The patient made a complete recovery.

Case 2. Woman, 49 years old, had been under observation for four years with repeated attacks of cystitis at periodical intervals of three to four months. Repeated cystoscopies and catheterization of the right kidney had given on five occasions, organisms; in three instances, organisms typical of *B. coli* and twice the streptococcus, no growth being obtained from the left kidney. Locally, bladder lavages and irrigation of various medications with associated indicated oral therapy gave temporary but no permanent relief.

Cystoscopy was essentially negative except for slight mucosal ulceration and edema around the right ureteral orifice. Catheters were passed easily to each kidney and individual specimens obtained. Indigo carmine and phenolsulphonphthalein, as well as retrograde and intravenous pyelograms were normal as to function and appearance.

Experimental Data: Gram's stain of the centrifugate of urine from the bladder and right ureter showed numerous bacilli of normal morphology and atypical streptococci; there were no organisms obtained from the left ureter. Ziehl-Nielsen stain and guinea pig inoculation gave no evidence of *B. tuberculosis* from

urine of the right kidney. Plates of blood and litmus lactose agar inoculated from the centrifugate of urine from the bladder and the right ureter gave surface growth colonies of bacillary organism and occasional greening of the medium was seen around the colonies on both chocolate blood agar and hemoglobin blood agar. On repeated transplants of typical colonies in blood agar, the predominant colonial form was smooth, round with perfect edges and markedly cohesive. Under the binocular colony microscope, the surface was conical, smooth and regular. Transplants of these colonies into ascites phosphate broth gave a pure culture of streptococci. Growth of the centrifugate in ascites phosphate broth, dextrose broth and blood broth gave variable sized chains of streptococci, with no capsules demonstrable. Repeated transplants in liquid mediums showed only streptococcal forms.

Original plate washings of the bacillary organisms suspended in saline solution injected intravenously into rabbits in 10 cc. doses produced no lesions upon sacrifice of the animals. Rabbits injected with 10 cc. of the streptococcal broth developed inflammation of both kidneys and bladder mucosa. Cultures of the urine from the rabbit's bladder gave streptococcal forms on liquid medium and bacillary forms on solid medium. Neither the bacillary or streptococcal forms gave any evidence of serologic specificity.

Treatment: Right nephrectomy was advised because of the failure of treatment over the past four years and the diphasic strain of organism obtained on cultures. Microscopical sections of the right kidney showed an active pyelonephritis with bacterial masses. Recovery was permanent.

Summary: In two cases of intractable cystitis and pyelonephritis relieved by nephrectomy, bacterial strains were isolated from the urine, which appeared in two phases, streptococcal and bacillary. When inoculated into rabbits, the bacillary forms were avirulent while the streptococcal forms tended to localize in the urinary tract.

4456-58 W. Madison Street.

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SUCCESSFUL EXTENSIVE RESECTIONS OF THE SMALL INTESTINE

PAUL W. GREELEY, M. D.

WINNETKA
and

PAUL E. N. GREELEY, M. D.

WATERMAN

The literature does not record a large number of extensive resections of the small intestine. The

available statistics show that the number is probably under one hundred. Flint¹ collected 59 cases in 1912 with 48 recoveries. In 1918, Moynihan found 54 cases with 53 recoveries. Watson,² in 1923, found only 72 cases recorded. Unfortunately, the tendency is to report only the successful results which in turn accounts for the low death rate of about 12 per cent.

Just how much intestine may be safely removed has always been a debated question. Although approximately 200 cm. is usually considered the maximum amount that can be removed with safety, resection of much smaller amounts has been known to produce serious digestive disturbances. On the contrary, many can survive resection of even greater amounts. Some persons are not seriously affected by the loss of more than one-third of the small intestine; others may have a tendency to diarrhea.

From previous observations made by Flint,¹ it has been found that after resection the intestine does not grow in length. However, it does increase its diameter to approximately twice the previous size. He found no regeneration in the crypts or villi, but he did find that there was an increase of 400% in some cases of the absorbing surface. Experimentally, he found that after compensation was established on a rich easily assimilated diet, digestion went on as in normal dogs, except for an increase in intestinal putrefaction, as indicated by an increasing amount of indican in the urine. Increase in fat was poorly handled. The carbohydrates on the other hand were absorbed to a degree considerably above normal, once compensation was established. He also discovered that although complete compensation did occur, there might sometimes later be a breakdown under unfavorable diet or disease.

The prognosis therefore depends not only on the length of intestine remaining, but also on the general resistance of the patient and the degree of compensatory reaction occurring in the remaining bowel.

The following case of the authors', while not as extensive as some reported, is of interest because a relatively large segment of the small bowel was removed with apparently no great disturbance to the patient.

A. L., a seventeen year old male, was in good health until shortly after finishing a large noon meal. Soon after he began to have pain in the lower part of his

abdomen. As the pain gradually grew worse, he did not return to work that afternoon. Around 4:00 p. m. he became nauseated and shortly afterward vomited his dinner.

Three months previously the patient had been operated upon for a ruptured appendix. Drains were used. The patient made a rapid recovery and was discharged from the hospital after two weeks with his wound completely healed.

He was first seen by one of us (P. E. N. G.) at 6:00 p. m. At that time there was a marked lobulated distention of the lower abdomen about the size of a football, slightly more marked on the right side. The mass was tender, fairly hard and tympanitic. Peristaltic waves were observed above the mass. His temperature was 99 degrees, his pulse 100, and the leukocyte count 25,000. The patient did not appear to be very ill.

With the previous history of a drained ruptured appendix and the present story and physical findings, a diagnosis of acute intestinal obstruction was made and the patient immediately sent to the hospital for operation.

The operation was started at about 8 hours after the onset of the initial symptoms. At this time his general condition still remained very good.

The surgical procedures were carried out with ease under spinal anesthesia, using 100 mg. of Novocain.

The abdomen was opened through a mid-line supra-pubic incision. Upon opening the peritoneal cavity, black distended ileum presented itself as far as one could see. A few centimeters of clear straw-colored fluid were later found deep in the peritoneal cavity. After delivering the gangrenous loops from the wound and drawing them to one side, a band of scar tissue approximately 2 cm. in length was identified in the right iliac fossa. The band was so placed that it obstructed the circulation near the root of the mesentery and thereby produced necrosis of the bowel supplied by vessels passing through the obstructed area. Throughout the mesentery, distal to the band, could be palpated many thrombotic vessels. The gangrenous mass had also partially rotated upon itself. The distal end of gangrenous bowel was at a point near the junction of the ileum with the cecum.

The gangrenous mass, which after removal measured 64 inches in length, was quickly resected, the ends of normal intestine invaginated, and a lateral enterocostomy performed between the terminal portion of the small intestine and the cecum. A Witzel enterostomy was then made just proximal to the anastomosis and the tube brought out through a stab wound in the right flank. The incision was finally closed in layers around one cigarette drain.

The post-operative course was rather uneventful. Nothing was given by mouth for the first 72 hours. Large quantities of normal saline were given by hypodermoclysis during the first four days. A Levine tube was passed through a nostril and continuous suction applied until the fourth postoperative day. The cigarette drain was shortened on the first postoperative day and removed on the second. There was very little postoperative distension. On the seventh postoperative day

the patient had a normal bowel movement. On the same day the enterostomy tube was removed. His diet and activities were gradually increased, and he was discharged from the hospital on the seventeenth post-operative day with all wounds healed and having normal spontaneous bowel movements. At no time did he have any diarrhea.

One year has elapsed since the operation. The patient has remained in excellent health and has been performing his normal duties. Occasionally he has had a slight tendency to develop a diarrhea, but he has always been able to control this easily by a diet of cheese and bananas. He has continued to grow and gain weight.

A recently gastrointestinal x-ray study showed that part of the barium had reached the transverse colon in one and one-half hours, and that all of the barium was in the rectum at the end of eight hours.

From similar cases reported by previous authors, summaries of the following are of interest in this discussion.

Jerauld and Washburn³ report a remarkable case wherein they successfully resected 19 feet of gangrenous ileum and jejunum following superior mesenteric thrombosis. Their patient made an uneventful recovery. Nearly one year later, they operated on him again for an acute mechanical intestinal obstruction. He again recovered and had no difficulty following except occasional attacks of diarrhea which lasted from 1 to 3 days. These were easily controlled by diet. He found that he had the least trouble if he stayed on a diet low in fats, but rich in carbohydrates and proteins. He had an excellent appetite, ate three meals daily, and as a rule had two bowel movements each day.

Denk,⁴ reporting Brenner's case in 1910, removed 17 feet 9 inches of gangrenous bowel from a strangulated hernia in a woman of 61 years. At first there were several fluid stools a day. She made a good recovery with very little metabolic disturbance for two years. She could not take milk and there was diminished fat absorption. She died of marasmus 2½ years after operation.

Wulsten⁵ successfully excised all but 6 inches of jejunum and 4 inches of ileum in a 64 year old man following thrombosis of the superior mesenteric vessels. Following the resection, the stump of jejunum was anastomosed laterally to the cecum. When discharged from the hospital, the patient paid no particular attention to his diet and his bowels moved naturally.

Doerfler's⁶ patient was a man, aged 52, who was operated on 30 hours after the onset of acute abdominal symptoms. A volvulus involving most of the small intestine was found, necessitating resection of 18 feet 8 inches of gangrenous bowel. Six years later the man was in perfect health. At first, however, he was obliged to eat every two hours and go to stool every four hours. Ultimately, after compensation had occurred, he ate three meals daily and had but two bowel movements per day.

Bauke,⁷ reporting a case operated on by Dahl-Iversen at Copenhagen, found it necessary to resect 14½ feet of gangrenous small bowel following mesenteric throm-

bosis. The patient was a man, aged 47. He made an excellent recovery.

Werelius,⁹ in 1907 reported resection of 12 feet 2 inches of small intestine which had prolapsed through the vulva of a woman, aged 20. An end-to-end anastomosis was done and the patient made a good recovery. She later bore two healthy children.

In 1907, Storp⁹ removed 16 feet 9 inches of small intestine from a man aged 21. All of the ileum and part of the jejunum were removed. The operation was performed for sarcoma of the mesentery. Three months later the patient was in very good general condition, had gained 11 pounds, and had normal bowel movements except for increased fat. Death ensued five months after operation from recurrence of the sarcoma.

Flosdorf,¹⁰ in 1925, reported a case in which resection of 6 feet of small intestine had been done in a woman, aged 26. Three years later she had lost 17 pounds and was becoming progressively weaker because of digestive disturbances.

In 1926, Jackson¹¹ resected two-fifths of the entire small intestine in an infant of two years. Because of the patient's age, the result is exceedingly interesting. Convalescence was extremely stormy. Watery bowel movements were frequent and necessitated frequent doses of paregoric to control them. For several years this boy suffered from severe upsets with watery movements, there being often from 5 to 8 unformed movements daily. However, each year he improved, and 7 years after operation he was in excellent health and for months had had only 1 or 2 normal bowel movements per day.

Skinner¹² reports a case in a male of 21 years. This patient was operated on for acute mechanical intestinal obstruction 20 days following an appendectomy; 40 days later, he had a recurrence of the same symptoms and was again submitted to laparotomy. This time 10 feet of gangrenous small bowel was found and resected. The patient made a smooth recovery except for some easily controlled diarrhea. During the first two months, indican was found in the urine and undigested fat and starch in the feces. Six months after operation he had no complaints and was carrying out his regular duties. At this time the urine was negative for indican but the feces were positive for undigested fat. This, however, was apparently not affecting his nutrition or general health in any way. X-ray films showed the barium had reached the splenic flexure in six hours. The small intestine was massed together in the pelvis and freely moveable. The colon was practically empty after 24 hours. The patient was last seen 11 months after operation and was then in good health.

Garner and Bissett¹³ report the successful resection of 261 cm. of small intestine for multiple ruptures of the bowel and mesentery following severe abdominal trauma. After a stormy convalescence, the patient made a good recovery. He had a recurrence of diarrhea four months after the operation, at which time he had as many as 6 to 12 loose movements daily. Aided by a constipating diet, bismuth powders and tincture of belladonna, the symptoms disappeared and he has remained well ever since.

SUMMARY

1. It is now quite a well established fact that in selected cases it may be possible to remove practically all of the small intestine without seriously endangering life or normal living.

2. A personal case of successful extensive resection and summaries of several previously reported significant cases are discussed in this paper.

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HALLUX VALGUS (BUNIONS)

PHILIP H. KREUSCHER, M. D.

AND H. KELIKIAN, M. D.

From the Department of Surgery, Northwestern University Medical School

CHICAGO

Hallux valgus is a term used to indicate an abduction deformity of the great toe. The term bunion indicates an enlargement or thickening of the bursa and other structures overlying the distal end of the first metatarsal bone and the proximal end of the first phalanx of the great toe. It follows then that a patient may have a bunion without having any decided hallux valgus, or he may have a hallux valgus without having associated with that deformity a pronounced bursal thickening or bunion formation. Although these terms are not synonymous, they have for a long time been used to identify the same pathologic entity.

Hallux valgus is seen more often in women than in men and is prevalent in those individuals who do a great deal of walking or standing on hard wood or tile floors. Normally all the weight of the body is borne on three distinct points on the plantar aspect of the foot.

These weight-bearing points may be designated as the heel, the prominence under the head of the first metatarsal bone, and the lateral aspect of the foot at the base of the fourth and fifth toes. (Fig. 1) Narrow pointed shoes, short shoes, and short stockings all tend to bring about a cramped position of the toes with a resultant hammer-toe deformity. The forefoot flattens and the normal metatarsal arch is depressed. (Fig. 2) The formation of these deformities is further augmented by the wearing of high heels, thus transmitting the greater portion of the weight



Fig. 1. Plantar aspect of normal foot showing the approximate areas of weight bearing.

of the body onto the front of the foot. The tips of the toes are forced together in a flexed position and pressure is exerted by the phalanx of the great toe against the first metatarsal bone at the articulation. This deformity may be visualized best in an x-ray film made of the forefoot through the shoe and stocking. This mechanism brings about a widening of the space between the great and second toe and as a result there is a collapse of the metatarsal arch of the foot. This collapse brings about a spreading or widening of the entire forefoot, and as the deformity of the great toe continues, the flexors of that toe shift laterally. The flexor hallucis longus tendon contains two sesamoid bones which normally lie under the distal end of the first metatarsal bone. One or both of these sesamoids may be drawn laterally and become wedged between the first and second metatarsal, thus acting as a decided factor in bringing about further deviation of the big toe. (Fig. 3) In time both flexor and extensor tendons to the great toe become shortened and a "bowstring" action results, thus making it impossible to straighten the great toe easily or to hold it in the normal corrected position. With the lateral deviation of the great toe, the widening of the forefoot and the marked promi-

nence or exostosis at the junction of the great toe with the first metatarsal bone, one can readily understand the effect of pressure and irritation over these structures. The bursa becomes irritated, the skin becomes thickened and often calloused, the internal lateral ligament of the great toe becomes stretched and hypertrophied and the internal lateral aspect of the head of the metatarsal bone and the periosteum covering it becomes thickened, thus giving us a true picture of a well advanced case of hallux valgus.

Hallux valgus is classified into first, second and third degree. In the *first degree* the toe is slightly deviated laterally. The "bunion joint" becomes prominent and the metatarsal arch is slightly effaced. In the *second degree*, callosities form from weight bearing over the ball of the foot and a definite thickening and callus formation occur over the metatarsophalangeal joint. (Fig. 4) In the *third degree* the tendons of the great toe become contracted so that the end of the great toe may either overlie or underlie the second toe. Marked periosteal changes take place over the "bunion joint," and very often the bursa becomes very much enlarged



Fig. 2. A well advanced third degree hallux valgus with bunion formation. Note the widening of the forefoot and the abduction deformities in all of the toes.

and inflamed. The overlying skin is usually covered with a dense callus. In this degree of deformity the x-ray clearly shows in the dorso-plantar view the marked wedging of one or both of the sesamoid bones. (Fig. 3).

Pain is the outstanding symptom. It is usu-

ally localized over the "bunion joint" and in the region of the transverse arch of the foot. It may radiate into the entire foot or even along the tendons of the calf of the leg. It is in some cases so severe that the patient become completely incapacitated for standing or walking. To obtain relief the patient usually buys shoes of

straight-edged ruler placed along the medial margin of the foot will show the degree of deformity. X-ray film examination is of importance in determining exostoses, segmented or displaced sesamoid bones, the exact position of the sesamoid bones and the absence or presence of other osteo-arthritic changes. Pre-operative examination also includes the examination of the circulation of the foot. The dorsalis pedis and posterior tibial artery must be tested for pulsation. The determination of the oscillometric index is of great importance, also the examination of the foot with the thermocouple. When the oscillometric reading is under 1, any type of operative procedure is contraindicated. Very frequently the bursa becomes infected. When the presence of infection is noted on examination, this must first be eradicated before any other operative measures are undertaken.

The treatment of bunions depends on the degree of deformity. In the first and early second degree properly fitted shoes and stockings and the placing of a suitable pad under the transverse arch may be all that is necessary.



Fig. 3. X-ray film of a third degree hallux valgus with bunion formation. Note the presence and displacement of sesamoid bones in both feet, the osteo-arthritic changes in the first metatarso-phalangeal articulations, the widening of the space between the first and second metatarsal bones and the widening of the entire forefoot as compared to the rest of the foot.

soft leather and of greater width. This only temporarily relieves the symptoms since a further widening of the forefoot is thus permitted to take place.

In order to determine the degree of deformity and outline the method of treatment to pursue, it is necessary that a systematic examination be made. The points of painful pressure should be carefully noted. Skin callosities, effaced or convexed transverse arches, as well as tissue changes in the region of the bursa, should be carefully observed. Passively the big toe may be flexed and extended to elicit joint pain so common in gout but not in uncomplicated bunion formation. Rigidity of toes must be ascertained. Meyer's line, which normally intersects the distal end of the great toe, will in case of hallux valgus pass medial to the toe. A



Fig. 4. A third degree hallux valgus with bunion formation. Flattening of the metatarsal arch is shown with extensive callus formation under the second, third and fourth toes. The depression of the metatarsal arch causes the weight to come upon that portion of the foot not intended for weight bearing.

The ideal stocking is one which has a separate compartment for the great toe, thus preventing the toe abduction from that source. In the late second and in the third degree, when there are no definite contraindications, operation is indicated. The management, in our opinion, divides itself into three distinct parts:

1. The operative correction of the deformity.
2. Maintenance of correction by immediate post-operative splinting and bandaging or the

application of corrective plaster mold about the foot and toes.

3. The remote post-operative management.

The incision is made over the inner and superior aspect of the phalangeometatarsal articulation. (Fig. 5) The skin is carefully undermined and the bursa exposed. Then the bursa is dissected free from the underlying periosteum in such a way that it may subsequently be utilized as a covering for the denuded head of the metatarsal bone. When the bursa is or has been recently infected, it should be entirely dissected out. The internal lateral exostosis and thickened periosteum is chiseled away in its entirety. The roughened surface of bone is rasped and completely covered with bone wax. All sharp edges are carefully removed. The sesamoid bones are exposed and removed in their entirety. The

necessary deformity of the foot. We do not find it necessary to perform an osteotomy at the distal end of the first metatarsal bone, nor do we, except in very rare instances, remove a wedge of bone from the internal lateral aspect of the metatarsal bone. The removal of the sesamoid bones is important in preventing subsequent pain and also displacement of the metatarsal head. Now the flap containing the bursa is sutured back over the denuded metatarsal head. The internal lateral ligament of the great toe is re-established and the skin is closed without drainage. It is not wise to remove the callus in the skin flap since that will create a defect over the head of the metatarsal bone which is very difficult to cover and since calluses are easily removed by the use of a 3 percent salicylic acid ointment.

The second step in the management involves the splinting of the great toe, holding it in a normal position. With the splint thus applied the other toes may be bandaged into proper position and a pad under the metatarsal arch enclosed in the same bandage or strapping at once reshapes the entire forefoot. This corrective bandage is permitted to remain for approximately one week or ten days, at the end of which time the stitches are removed and a similar bandage is re-applied. Occasionally we have found it advantageous to enclose the entire foot and toes in a plaster mold. This plaster is so formed and shaped as to correct the deformity of all of the toes and also to re-establish the metatarsal arch.

At the end of approximately three weeks all dressings and bandages should be removed and the patient should be fitted with the proper stockings and correctly fitted shoes. Active and passive motion of the toes and foot, together with massage and the use of corrective exercises, will enable the patient to use the foot in a normal manner. The metatarsal arch must be maintained by the use of a specially prepared pad or insole. The patient who has had an operation of this kind should be carefully supervised at stated intervals over a period of at least six months. We believe that in many instances a good technical operation will lose its value unless the post-operative care and follow-up are observed.



Fig. 5. The line of skin incision for the operation upon the first metatarsal bone, the tendon elongation, capsulotomy and removal of the sesamoid bone.

next step is an exposure of the extensor tendon of the great toe. This is then elongated from one-half to three-quarters of an inch by tenoplasty and then placed back into its proper sheath. This last-named procedure is very important since it eliminates the "bowstring" action of this tendon. In advanced cases it is necessary to divide the internal lateral portion of the contracted joint capsule since this is a very firm fibrous structure which would interfere with the proper correction of the deformity of the great toe. We do not subscribe to the indiscriminate removal of the head of the metatarsal bone since we believe that in most instances this is entirely unnecessary, lengthens the convalescing period, shortens the toe and thus causes an un-

THE VALUE OF BLOOD FINDINGS IN THE PROGNOSIS OF ACIDOSIS IN DIABETES

R. M. PARROTT, B. S., M. D.

OAK PARK, ILL.

In estimating the condition of a diabetic patient with acidosis, the sugar in the blood and the carbon dioxide combining power are usually estimated. Not undervaluing urinalysis or the measuring of the nitrogenous partition products of cholesterol in the blood, one commonly hears the seriousness of the patient's condition described in terms of sugar in the blood or carbon dioxide combining power.

According to the observations of Joslin, White and Root¹ a high blood sugar is not necessarily accompanied by a low CO₂ tension. With a CO₂ combining power of less than 20 volumes per cent. the sugar in the blood might be 200 to 800 mg. They report 3 patients with blood sugar levels above 1000 mg. Two of these recovered. They report 1620 mg. of sugar in the blood of a patient as the highest figure in the literature for a patient with recovery. In their experience the CO₂ combining power was below 10 in 13 patients. They did not regard these readings as indications for the use of greater doses of insulin or predictions of delayed recovery. For them the findings of chemical examination of the blood are not criteria of the patient's chances for recovery. With them the prognosis is based upon the presence or absence of such complications as infection or the usual signs of the moribund state. Three years later these same authors² emphasize the likelihood of fatal coma if the CO₂ combining power is below 20 volumes per cent. They found the CO₂ combining power as low as 5 per cent. in three. Two of these recovered. They report recovery from diabetic coma of a patient with CO₂ combining power as low as two volumes per cent. Below 10 volumes per cent. the CO₂ combining power signified the presence of some severe additional complication.

John³ described a patient with a CO₂ combining power of 10.9 per cent. and 894 mg. of sugar per 100 cc. of plasma. She recovered on receiving 600 units of insulin in 12 hours. John says the sugar in the blood may reach 1710 mg.

Haines and Davis⁴ report the recovery of three

patients with blood sugars above 1000 mg. In none of these patients was the reading of the CO₂ combining power less than 11 volumes per cent.

Our patient was a woman 30 years old. Four years ago she had been told that she had diabetes. She had never weighed her food and had not adhered to the qualitative restriction of carbohydrates prescribed. She had never had insulin. In the past two years her weight decreased from 169 lbs. to 112 lbs. Fatigue and drowsiness had been constant for the last month. Her sight had deteriorated in the last four days.

An infection of a thumb developed following a thorn prick one week previously. On incision of the resultant cellulitis the patient lapsed into acidosis.

She was a rather thin woman in deep coma. She could not be roused. Her muscles were flaccid. She had typical Kussmaul breathing, soft eyeballs and a beefy red tongue. Examination of the fundi gave no evidence of lipemia. Her breath reeked with acetone. The abdomen was mildly distended. Her extremities were cold and blue.

The urine showed maximum amounts of sugar, acetone, and diacetic acid. Her blood contained 500 mg. glucose per 100 cc. The CO₂ combining power was 8 volumes per cent. on two samples of blood taken successively soon after admission. Admitted 2:30 P. M. on July 12, 1933. Both tests were repeated. CO₂ Comb. Power 3 P. M., 7-12-33. 8 Vol. per cent. CO₂ Comb. Power 5:30 P. M., 7-12-33. 8 Vol. per cent.

These determinations were made according to Van Slyke's method.^{5,6} No leaks were found on checking the instrument.

Emergency measures for the treatment of severe diabetes with acidosis were instituted. After twenty-four hours and having received 190 units of insulin, her CO₂ combining power was 25 volumes per cent., and she was conscious. The cellulitis was properly drained. A regular weighed diet was ordered 36 hours after admission. Acetonuria disappeared in 12 days.

The patient was discharged on a diet affording 155 grams of glucose and 2,000 calories. Forty units of insulin controlled the glycosuria with this diet.

Examination of our records shows no previous instance of recovery of a patient with such a depression of CO₂ combining power. Of course we regard the lowering of the CO₂ reading as far and away more important than the degree of blood sugar elevation. The estimation of the CO₂ combining power has its value as a quantitative method of determining the severity of acidosis. A marked lowering of the CO₂ combining power does not exclude the possibility of recovery.

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THE DOSAGE OF HISTAMINE FOR STOMACH TESTS

E. E. SEIDMON, M.S., M.D., AND H. NECHELES, MD., PH.D.

CHICAGO

There have recently appeared controversial reports on the usefulness and dosage of histamine for stomach tests. Streicher¹ states that even doses as low as .05 mg. per 10 kg. of body weight frequently produce untoward effects with a severe headache and anginal pain, while a great number of investigators use 0.1 mg. per 10 kg. of body weight without commenting on alarming effects.^{2, 3, 4, 5} (For a survey on the action of histamine,⁶ see 6.) All tests reported below were done by one of us. Great care was taken in the administration of the exact dosage, as well as in the observation and registration of symptoms.

For some time we used 0.1 mg. of histamine acid phosphate (histamine diphosphate, ergamine acid phosphate*) per 10 kg. of body weight subcutaneously and had some incidents of severe headache, prostration and angina-like pains. After a number of trials with varying doses we arrived at 0.35 mg. of histamine acid phosphate per adult person, and since using that amount we have not seen any untoward effects. The only symptoms seen in a number of patients were slight headache which soon disappeared, and a flushing of the face. Seventy tests were performed on adult male and female patients who were admitted to the gastrointestinal service at the Michael Reese Hospital, and all who had or were suspected of having a peptic ulcer. The acid response and volume secretion to the histamine injection was satisfactory.

In the following table and chart our results

From the Department of Gastro-Intestinal Physiology, Nelson Morris Institute of Michael Reese Hospital and the Stomach Study Group of the Michael Reese Hospital.

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*Burroughs Wellcome.

on 58 patients (48 males and 10 females) are presented. The tests were done under basal conditions, i. e., the patient had not eaten any food for the previous 12 hours. A Rehfuß or Sawyer tube was swallowed and 4 to 6 control samples were taken at 10 minute intervals. The histamine was injected subcutaneously, and then at least 10 more samples were taken at 10 minute intervals. The difference between the highest value of the controls and the highest value of the test is considered as representing the stimulating effect of the histamine. The free acidity is expressed in clinical units,* and the volume of secretion in cc.

TABLE 1. AGE AND WEIGHT OF SUBJECTS

	Average	High	Low
Age in years	41½	59	21
Weights in kg.....	62.2	90	45

There was no free acid response in 8.6% of the experiments; all of these tests, however, showed a considerable increase in volume of secretion or of combined acid after histamine.

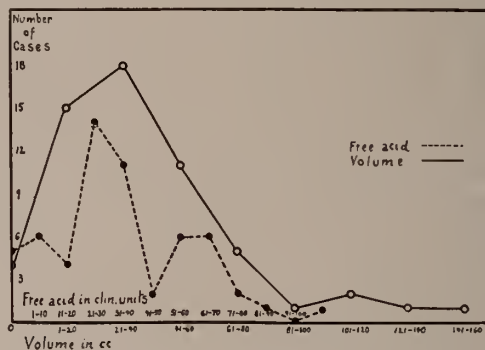


Chart 1. Distribution curves for acidity and volume response following subcutaneous injection of 0.35 mg. of histamine acid phosphate.

The average acid response in the positive tests was 35.8 clinical units, the volume response was 41.5 cc. A slight headache appeared in 86% of the cases; it began in an average of 15 (range of 1-50) minutes after injection and lasted for 27 (10-60) minutes. A flush of the face appeared in 60% of all patients, which began 13 (1-30) minutes after injection and lasted for 25 (1-50) minutes.

Considering our discouraging results with doses of histamine acid phosphate larger than 0.35 mg. per adult we are surprised that the above mentioned authors^{1, 2, 3} report no un-

*A clinical unit is the number of cubic centimeters of N/10 HCl in 100cc. of stomach juice.

toward effects with doses that amounted to much more (e. g. to 0.6 mg. for a person of 60 kg. body weight.) Since the average weight of our subjects was also around 60 kg., we think that there was some difference in the groups of subjects under consideration. All of our patients were Jewish, many of them being weak, undernourished impoverished and nervous. It is not impossible that the instability of the vasomotor system may influence the effect of histamine as to headache, flushing and pain in the heart region.

The same weights of histamine base, histamine dihydrochloride and histamine diphosphate contain varying amounts of secretion and shock producing histamine. The molecular weights of these three compounds are 111, 184, and 307 respectively. This means that a given weight of histamine base contains nearly three times as much histamine as the same weight of histamine diphosphate and vice versa. Unfortunately some writers do not specify which histamine compound they used and it may be that untoward effects observed by them were due to the above mentioned fact.

CONCLUSION

We consider a dosage of 0.1 mg. of histamine acid phosphate (histamine diphosphate) per 10 kg. of body weight as too high for some cases. Hypodermic injection of 0.35 mg. per adult person (0.056 mg. per 10 kg. of body weight) produced a good acid and volume response of the stomach in our series. If symptoms appeared they were transitory in character and of no danger to the patient. We therefore feel justified to recommend the dosage of 0.35 mg. of histamine acid phosphate for gastric secretory tests on adults.

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A CASE OF CONGENITAL ABSENCE OF UTERUS AND VAGINA

HARRY O. VEACH, M.A., D.M.S., M.D.

KEWANEE, ILL.

Rare cases occasionally fall to the lot of the general practitioner in relatively small communities, and the present case is the more unusual, because, associated with congenital absence of the uterus and vagina, there was a left indirect inguinal hernia and the left ovary was attached to the wall of the hernial sac. I first saw the patient in the summer of 1933. She was a well-developed girl of fourteen years, of typical female habitus, and with well-developed breasts. There was no indication of a vagina, though the external genitalia otherwise were normal. Rectal examination revealed no trace of a uterus. The hernia was obvious and painful.

A year later, the hernia had become so painful that the patient was brought to me for operation, and I did a radical repair of the hernia at the St. Francis Hospital on Aug. 22, 1934. The hernial orifice admitted the index finger easily, but no trace of a uterus could be felt by intra-abdominal palpation. Tension on the left round ligament indicated by palpation that it was continuous with the round ligament of the opposite side.

The left ovary was firmly attached to the lateral wall of the hernial sac. The presence of the ovary in the wall of the hernial sac is evidence of descent of the ovary along the round ligament, because of failure of the uterus to develop.¹

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RENAL DWARFISM

LEO FREDERICK MILLER, M. D.

GEORGE CHARLES COE, M. D.

From the Orthopedics and Medical Services of Dr. Charles M. Jacobs and Drs. M. Lewison and E. B. Freilich, of Mount Sinai Hospital

CHICAGO

It is known that chronic renal pathology may cause dwarfism and infantilism in children. Lucas, in 1883, was the first to describe the relationships of chronic renal conditions with changes in the bone; Hunt gives credit to Goodheart for the first description of the association

of renal conditions and rachitic like deformities in the bone. Since this time, many authors, such as Fletcher, Parsons, Forster, Sawyer, Mitchell, etc., have proven this relationship.

To Mitchell falls the credit of clarifying the distinctions between renal dwarfism, renal infantilism and renal rickets. We are reporting a case comprising all three of these elements associated with chronic renal disease, and we feel that it is sufficiently interesting and informative to warrant its publication.

The patient, J. W., aged seventeen years, presented himself to the Out-Patient Department of Mount Sinai Hospital, Chicago, on September 7, 1934, complaining of scoliosis and occasional attacks of pain in the right lumbar region. He stated that five years previously, he was operated on for "Kidney Stones," but the kidney was not removed. Since that time, he has had recurrent attacks of right lumbar pain occasionally radiating down to the tip of the penis. On several occasions he experienced a gross hematuria. He made no complaints of frequency, urgency, polyuria or nocturia.

Subsequent investigations (from the father, a dentist) revealed the facts that the boy also had urinary difficulties as an infant, with associated marked evidences of rickets. The child progressed poorly in health and in stature, but mentally exhibited evidences of precociousness.

Six years ago at the age of eleven, he began to complain of the lumbar pains which were caused by renal calculi. Five years ago, he was subjected to surgery.

Post-medical history revealed that the boy had rickets, diphtheria, scarlet fever, chickenpox and pertussis.

Examination revealed a white male of seventeen, weighing ninety-six pounds and 59 inches tall. The skin was sallow with multiple areas of pigmentation (freckles) about the face and body. The hairy distribution of the body lacked masculine characteristics. There was an underdevelopment of the genital organs with a marked atrophy of the left testis. The voice was of masculine type. The whole appearance of the patient was that of under-development physically and sexually. The chest wall exhibited evidences of a rachitic rosary and a Harrison's groove. The spine showed a right dorsal and a left lumbar scoliosis. The thyroid gland was not palpable. The cardiac findings were essentially negative, but compression atelectasis of the right lower pulmonary lobe was present due to the scoliosis. The abdomen revealed a kidney incision completely healed with no evidences of tenderness or pain anywhere. The blood pressure was 100/75.

Laboratory Studies: The Wassermann and Kahn tests were negative. The blood count showed an 85% hemoglobin with a red blood count of 6,440,000 (color index .66); white blood count of 9,550 with 49% polymorphonuclear leucocytes, 38% lymphocytes and 4% eosinophiles (count of 200 cells). The blood chemistry

showed 100 mg. sugar, 22 mg. urea-nitrogen, 11.2 mg. calcium and 3.4 mg. inorganic phosphorus per 100 c.c. of blood. The urine was examined on several occasions. At one time there was a 3-plus albuminuria with too many white and red blood cells to count. All specimens were chemically positive for blood.

Metabolic Studies: Metabolic rates showed a minus -13% and a minus -11%.

Phenolsulphonthalein: Kidney function test revealed marked impairment; 25% of the dye was eliminated in the first hour, 15% in the second, and 5% in the third hour, giving a total of 45% in three hours.

X-Ray Studies; Wrists: Normal ossification of the bones with no cupping of the radius or stippling in the diaphysis. *Skull:* Contour of the cranial bones revealed no fuzziness; was not thickened and the sella turcica was normal. *Kidneys:* A flat plate showed the outlines of the left kidney: Evidences of two rounded, homogeneous shadows of calcium density were visualized in the region of the right kidney. Films exposed after the intravenous injection of hippuran showed a slightly enlarged kidney pelvis and upper ureter on the right side and the two shadows in the region of the kidney pelvis and calyces. The left kidney pelvis shows a soft filling and appears normal in size.

Summary: That this patient has chronic renal pathology is evidenced by the history, the urine showing albumin and blood, the lowered kidney function and the roentgenologic evidences of kidney shadows. Associated with these renal phenomena, there are evidences of dwarfism and bony changes as seen by the height and scoliosis, the Harrison's groove, and the rachitic rosary. The infantilism is well seen by the retarded sexual development, and the lack of normal hairy distribution for a male of his age.

In an attempt to explain the relationship between the dwarfism and the bony changes with the renal pathology, Parsons states that the bony deformities are those of a true low calcium rickets. The decrease in calcium may be absolute or relative with an increase in phosphates. This, however, only holds true in an active stage. The primary cause of the decrease in calcium in the bones is believed to be the inability of the kidney to excrete phosphates, which leads to an increase in the blood phosphorus and a depression of the blood calcium. The renal insufficiency leads to an acidosis which is supposed to cause a mobilization of calcium from the bone, resulting in decalcification. Mitchell points out that excess waste endogenous phosphates which cannot be excreted through the kidneys may be excreted through the intestinal mucosa. Increasing the phosphates in the intestines may interfere with the absorption of calcium, presumably through the formation of insoluble calcium phosphates.

In cases in which healing occurred, the blood phosphorus and the blood calcium levels slowly came back to normal.

It is known that urinary calculi may cause kidney dysfunction with the development of symptoms similar to those associated with chronic interstitial nephritis in children (Mitchell). We feel that this case is one of chronic renal pathology caused by renal calculi over a long period of time, resulting in dwarfism, infantilism and bony changes.

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MODERN ADVANCEMENTS IN SEROLOGY

HARRY PHILLIPS, M. D.

Anna State Hospital

ANNA, ILL.

Since Pasteur's time, that part of biology which pertains to bacteria opened the doors toward the development of serology and, today, the findings that have come from serological studies stand out as some of the greatest advancements of medicine. The utilization of antibodies in the treatment of communicable diseases deserves considerable consideration. Antibodies divide themselves into two distinct classes: The antitoxic and the antibacterial bodies. The antitoxic sera are more potent than the antibacterial sera and, when we treat cases having tetanus and diphtheria, there is no difficulty in giving sufficient antitoxin to be effective if we reach the cases early enough. With the antibacterial sera, however, we have to utilize the body fluids and cellular elements to aid the antibodies of the antiserum to destroy the micro-organisms and this limits the effective treatment of the cases.

Diphtheria: In considering the dosage of antitoxin, we must keep in mind that it is not the amount of toxin in the body which determines the amount of antitoxin to be given. Parks¹ states: "If all the toxin in the most malignant case could be extracted and placed in contact with antitoxin, less than one hundred units of antitoxin would neutralize it." As only a

slight percentage of the antitoxin in the blood passes out through the capillaries within a limited period of time, we realize the wisdom of giving a great excess so that in a short time the amount which passes to the tissues will be sufficient to neutralize any unattached toxin.

In giving intravenous injections, the dangers of anaphylactic shock should be borne in mind. When antitoxin is given, it should be given fairly warm and slowly. It is well to remember that antitoxin, in an intramuscular injection, is only gradually passed out to the blood. At the end of twenty-four hours, only sixty per cent. has been absorbed and it is two days before it is entirely absorbed. There is no harm in repeating the injections but, if a sufficient dose has been given at the first injection, there is no advantage in giving additional antitoxin, while there is distinct harm in giving half of the amount needed at the first injection and supplementing this with a second dose twelve hours later, because in some cases greater toxicity develops.

Passive immunity with antitoxin is not lasting. It is quite different from that which develops after toxin-antitoxin, or toxoid.

Tetanus: From time to time, there arises the question as to what cases should or should not receive tetanus-antitoxin. The answer to that question, Gentlemen, is left to the judgment of the clinician and the objective should be toward a preventive sphere to offset the disease of tetanus. Unfortunately, every clinical case is a late one. In treating cases of tetanus, two proper methods of giving antitoxin suggest themselves. One is through the intravenous injections and the other through the intraspinal injections. These two methods should be combined for the best results.

We must remember that, in the severe and rapidly advancing cases, antitoxin will probably be given too late to do any good. It is in the moderate case, which would probably be fatal without treatment, that the antitoxin shows its best effects. Generally, we begin then by giving an intraspinal injection of ten thousand to fifteen thousand units and an intravenous injection of the larger amount. In twelve hours we give another intravenous injection and in twenty-four hours a second intraspinal injection. If the case does not seem greatly improved, we continue an

intraplasmic injection every day for two or three days. It is probable that any case that receives one hundred thousand units of antitoxin, properly administered, has obtained all the value from antitoxin which it is possible to receive.

Scarlet Fever: A renewed interest in the serum therapy of scarlet fever has followed the studies of Dochez and the Dicks and the further studies² of the toxins of the streptococci from scarlet fever, erysipelas, and the other forms of the streptococci infection have revealed the fact that the toxin of a streptococcus strain may incite a reaction that is neutralized by a specific serum, in one susceptible person or animal and not in another person or animal.

It is most unfortunate that serums for the treatment of this disease have lacked valence and a sufficient potency. Efforts to improve the quality of the serum have not, however, been lacking. For the best therapeutic result the serum should have an antitoxin potency of at least four hundred units per c.c. The dose in moderate cases is from ten thousand to fifteen thousand units intramuscularly or three to five thousand units intravenously and, in severe cases, five to ten thousand units are given intravenously. Some clinicians give only three thousand units intravenously for the first dose, following with a larger amount in three to twelve hours. They had no bad reactions when the serum was given that way and, if the temperature rises after falling and the rash is still present, repeated injections were given. It appears to be the general consensus of opinion of some men that scarlet fever antitoxin should be reserved for the more severe cases and, in those cases in which the temperature is less than 102 they do not advise the use of the serum. The Dochez, N. Y. 5 serums and the Dick serums are used in treatment to a very large extent today.

As regards the passive and active immunization, McClean,³ Joe, Swyer,⁴ Nabarro, Signy, and others have injected antitoxin prophylactically in doses of five to ten c.c. into all the Dick positive contacts of scarlet fever. Dick positive persons can be actively immunized with toxin and become in this way negative. (Dick and Dick⁶.) Williams⁷ recommends five subcutaneous injections of 500, 2,000, 8,000, 25,000, and

80,000 S.T.D. (Skin test doses), and retest after one to six months.

In passing on scarlet fever, we wish to state that authorities differ in opinions as to the value of scarlet fever antitoxin in preventing complications. The tendency, however, is to lean toward a more optimistic point of view and that complications have been found to be fewer when the antitoxin was administered.

Erysipelas: Hemolytic streptococci are intimately associated with this type of infection. This organism or group of organisms, like their near relatives the scarlatinal streptococci, produce a toxin and against this toxin an antitoxin has been obtained, and concentrated, which apparently has therapeutic value, especially given before the fourth day, and is recommended in cases of this kind. In ten c.c. doses, erythema, edema, temperature and toxemia diminish. Being an antitoxic serum, its effects are mainly against toxemia and against subsequent infection or recurrence.

Pneumonia: The greatest difficulty in the use of anti-pneumococcus serum is the fact that pneumococci divide into so many types. We now have twenty-eight specific types of which about six are prevalent in adults and about ten in children. Until recently, pneumococci have been grouped as types I, II, and III, and type IV was simply a name given to unclassified pneumococci. At the present time, we have a supply of antipneumococcus sera for types I and II. Antiserum for other types is being worked upon at the present time. In treating cases of pneumococcus pneumonia with a high temperature and a toxic condition, a preliminary dose of about five thousand units of a polyvalent type I and type II serum is given intravenously. If no deleterious reaction to the serum within a course of two hours results, an additional dose of fifteen thousand units intravenously is given. About every six hours during the first day, an additional dose of twenty thousand units of the antiserum should be injected intravenously. On the second day, if a crisis has not already developed, the serum treatment is continued. At the end of this time the case has either recovered or the value of the serum is doubtful and, owing to the expense, the doses of serum are apt to be discontinued. As a general thing, larger doses of serum are

required in type II cases than in type I cases. At the present time, refined antipneumococcus sera are prepared by the Felton and Branzhof methods. The results obtained from antipneumococcus sera in treating pneumonias have been better in type I pneumonia than in type II.

Unless the pneumonias are typed at the earliest possible moment we may be giving a serum unnecessarily in about two thirds of the cases. The dose of serum or antibody should be warmed and given very slowly; about fifteen minutes is required. The typing for the kind of pneumonia can be made by the Mice method or, more recently, by the microscopic agglutination and precipitation test with the sputum.

Poliomyelitis: During the past few years very encouraging results have been obtained by the use of convalescent poliomyelitis serum. Unlike the convalescent measles serum, it has not been used for the purpose of conferring passive immunity because the immune bodies, when injected subcutaneously or intravenously, are thought not to pass through the normal choroid plexus into the cerebral spinal fluid. The property of the neutralization of the virus by convalescent serum is frequently present in the serum of people who have been in contact with definite cases of infantile paralysis without developing the disease themselves.

During the period of penetration of the meningeal choroid plexus complex defense by the virus, meningeal signs of irritation appear, which are quite characteristic to both clinical and spinal fluid examinations. To this period the term preparalytic stage is applied. Clinically, this period usually lasts about three days and represents the interval elapsing between the onset of illness and the appearance of the paralysis. It is in this preparalytic stage that the most beneficial results are to be expected from the use of convalescent serum because, at this time, before damage to the nerve cells has taken place, it is possible to neutralize or destroy the virus and prevent injury to the nerve cells. Later, when paralysis has occurred, nothing can repair the injured nerve cells, although it is possible that convalescent serum might prevent further paralysis. The Harvard Infantile Paralysis Commission³ showed the grade of paralysis was 63.6 per cent. in untreated cases, 19 per cent. in the paralyzed treated cases.

In treating cases of infantile paralysis, the following is suggested: At once and simultaneously, 20 c.c. of human convalescent serum are introduced intraspinally and 20 c.c. in addition intravenously or intramuscularly. On the following two days, 20 c.c. more are given intramuscularly or intravenously on each day. A very important consideration in respect to serum therapy of infantile paralysis is the necessity for the administration of the serum at the time of the first lumbar puncture. It is imperative that the administered serum be actively immune and sterile; otherwise, the damage to the meningeal choroid plexus complex defense may result in multiple infections of the central nervous system.

In passing, antisera have been prepared by Rosenow, and also by Branzhof of the Research Hospital Laboratories of New York City. Parks of New York states that the antiserum which has been prepared in horses is equivalent in value to that which has been obtained from convalescent cases of the human disease. This serum has been refined by Branzhof so that it is about three or four times the strength of convalescent serum.

Measles: Since 1916, so much experience has been had with immunization with convalescent measles serum that it may be said with authority that the blood serum taken from the measles convalescent five to seven days after return of normal temperature is so rich in antibodies that it will absolutely prevent the disease upon subcutaneous injection in sufficient amounts into the individual early after exposure to measles. There seems to be some question as to the benefits to be derived from convalescent serum after the catarrhal stage has developed but it is thought by some workers that even under such circumstances the subcutaneous injection of large amounts, such as twenty-five to thirty c.c. of convalescent serum, does reduce the severity of the disease. Therefore, everyone is agreed that six c.c. of convalescent serum given to children under three years and six to ten c.c. to the child over three years, when given within one to three days after exposure to measles, will prevent the disease and confer a passive immunity to measles lasting anywhere from one to three months. If six to seven days are permitted to elapse after exposure, five to ten c.c. of this serum may be given with confidence that the disease will de-

velop in a very mild form. This method of procedure has the further advantage of permitting the child to develop its own active (permanent) immunity to the disease. A very important feature in the use of convalescent serum is the necessity of excluding the possibility of syphilis and tuberculosis in the donor. Another matter of some importance is that pooled serum from several convalescents seems to be considerably more potent than the serum from a single convalescent. Frequently, as little as three c.c. of pooled serum given to infants and young children within two or three days after exposure proves sufficient to prevent the development of the disease.

Recently, serum of adults, who have had measles, has been used. This known therapeutic method has been of great help to the general practitioner in aiding him in preventing and modifying the course of measles. When he has an exposed child under five years, the age group in which 90 per cent. of the deaths from measles occur, or an exposed child of any age, suffering from other illness, all that is necessary for him to do, in order to prevent or greatly ameliorate the severity of measles, is to take from twenty to thirty to forty c.c. of whole blood from either parent, who has had measles some time in the past, and immediately inject it into the child's buttock. The earlier after exposure, up to six or seven days, the more sure is the disease to be prevented.

Mumps: Convalescent serum has been used with some success in treating some cases of mumps. Some authorities¹⁰ claim that mumps can be prevented by the injection of six to eight c.c. of convalescent serum. At the present time, I wish to make a very important statement, namely, that from three to five per cent. of all deaf mutes in the United States are as a result of mumps. Immunization, therefore, is surely worth while in the presence of any epidemic.

Meningitis: Knowledge of the virulence and the pathogenicity of the meningococcus, unfortunately, is extremely limited. Experimental study of infection is hampered by the lack of laboratory animals that are susceptible to the true infection, and the difficulty of differentiating the toxic products.

In epidemic cerebro-spinal meningitis or meningococcus meningitis, the antimeningococcus serum has reduced the mortality and the subse-

quent physical damage. It is a polyvalent serum and should be given subdurally at the earliest possible moment. The amount injected into the spinal canal should be slightly smaller than the spinal fluid withdrawn and should be injected slowly under gravity pressure, not by a syringe. Ayer recommends the cisterna magna route, especially in children, as being free of danger. Intravenous injection is of value theoretically only in the early stages.

Streptococcal Infections other than Scarlet Fever: The efficacy of hemolytic streptococcal antitoxin in combating non-scarlatinal infections has already been the subject of inquiry and, although beneficial effects have been reported, there have been many failures. Good results were obtained when surgical measures were employed whenever indicated in streptococcal infections with and without bacteremia. Although an antibacterial action on a homologous strain has been attributed to sera prepared experimentally by Lancefield and Todd, Downie, and others, no antibacterial serum is at present available to combat the pyogenicity and the invasive properties of the streptococcus. Recently, hope was raised by Todd⁹ in the preparation of an antihemolysin of high titre. Unfortunately, hemolysin cannot be identified with the pyogenic principle of the streptococcus.

Staphylococcal Infections: The staphylococcus antitoxin is also a hemolysin and excellent results have been obtained with antistaphylococcus serum in staphylococcal septicemia and, in these cases, should be given by the intravenous route. The serum neutralizes toxins and impedes one of the more important modes of attack by the staphylococcus and thereby aids the natural defenses of the tissues. On the other hand, one has to admit that contradictory reports have been made as to its usefulness. It cannot be expected to take the place of surgery in such conditions as osteomyelitis and staphylococcal abscess of the kidney, although it may be a useful adjunct.

Therapeutic Value of Blood: Results have been good where blood has been used in primary and secondary anemias, especially those secondary anemias resulting from nutritional disturbances. It is also a valuable measure for preoperative and postoperative conditions. Transfusions have given good results in migrating types of erysipelas. Severe diarrheas with toxemia and asso-

ciated with mucous and bloody stools respond to transfusions and intramuscular injection of blood. Hemorrhagic disease of the new born, a condition where there is fresh blood in the vomitus, where blood is passed from the bowel and is present in the urine and where bleeding occurs from mucous membranes of the body, can especially be treated by the injection of 30-50 c.c. of whole blood intramuscularly or subcutaneously. Hemorrhage or loss of blood by accident or injury, thereby endangering the patient's life by loss of blood volume, should always have a blood transfusion and normal saline. Prematurity of infants is an indication for the subcutaneous injection of blood. The premature infant is so often too weak and unable to digest and assimilate sufficient food for the metabolic requirements. Increasing the blood content fifty per cent. or more is a life saving measure. A good rule to follow in giving blood to infants and young children is fifty cc. per kilogram of body weight and not to give over fifty per cent. of the total quantity of blood already possessed by the infant or young child.

Autogenous Blood: The autogenous use of blood has been used with some degree of success, in the treatment of psoriasis and in the treatment of gonorrheal epididymitis to some extent by some Italian authorities.

Serological Laboratory Tests: Serological laboratory tests depend upon immune bodies to a large extent. The second order of immune bodies consists of agglutinins and precipitins. These immune bodies form the basis for the Widal reactions, the Kahn and allied reactions of this type and for typing pneumococci. The immune bodies of the third order comprise the basis for the Wassermann and gonorrheal complement fixation tests and other tests of this type.

Tests for Pregnancy: The test for pregnancy will be briefly discussed. The advances in physiology and endocrinology have added much to our knowledge of the functions of the ductless glands and physiologic changes during pregnancy. It is on this fundamental work that pregnancy tests of Aschheim and Zondek, of Brouha, and Friedman's modification of the Aschheim and Zondek tests depend. The above tests are already familiar to all of you. I wish to mention an empiric reaction which can be performed by the busy general practitioner. The reaction is

called the Bercovitz reaction. Examine first to see that both pupils of the eyes are equal. A few c.c. of blood is drawn from the vein. A drop of the serum is then instilled in the conjunctival sac. A dilatation or contraction follows an initial pupillary spasm. If this subsequent dilatation or contraction of the pupils occurs, the reaction is positive for pregnancy in eighty per cent. of the cases. A very important fact to remember is that Bercovitz does not advocate the use of the reaction as a means of differential diagnosis.

Blood Sedimentation Tests: In diagnosis, the test has two values: First, as a diagnostic lead and second, as a diagnostic gauge. As a diagnostic lead it indicates the presence of serious disease, not infrequently before the disease can be recognized by the usual clinical and laboratory methods. As a gauge of the constitutional disturbance produced by the pathologic process, it indicates the intensity of the disease. As a prognostic index and, similarly, as a guide in treatment, the rate of sedimentation has been shown to be a more accurate and reliable reflection of the real condition of the patient than our usually accepted procedure. It becomes more rapid as the disease progresses and approaches stability only as the physical condition returns to normal. It is not influenced by psychologic factors and may be the only warning among undue clinical signs.

The test is very simple to perform and to interpret and is inexpensive. It is a clinical procedure that can be carried out in the office, in the dispensary, or at the bedside. The complete result is available within an hour and, in case of necessity, this sedimentation test will give valuable information within the first half hour.

The Serology of Gonorrhea: As regards the serology of gonorrhea, the complement fixation tests may be used, especially in chronic diseases and in cases of arthritis with complications, for differential diagnosis. This test ceases to be of diagnostic value, however, if specific vaccine treatment has been employed.

The Serology of Syphilis: There is a controversy raging at the present time on the exclusive use of the precipitation tests or the complement fixation tests. Since both tests rest apparently on an immunologic basis, it is better to have a specimen of blood examined by both

methods whenever a question of doubt arises. Of the numerous precipitation tests developed, among them being the Kahn, Hinton, Sachs-Georgi, Meinicke, Kline, Rosenthal, and Eagle tests, the Kahn seems to be the outstanding. The precipitation test is especially useful in cases in which the serum is anticomplementary by the complement fixation tests.

The Wassermann reaction is positive in the following conditions besides syphilis: Yaws, relapsing fever, trypanosomiasis, pellagra, the tubercular form of leprosy, and scleroderma. Positive reactions, usually weak, have occasionally been noticed in persons suffering from diabetes and acidosis.

The serology of neurosyphilis is very interesting. It is interesting to note that studies have shown that the central nervous system is or may be affected with greater frequency and at a much earlier stage of the procedure than was hitherto supposed. In the primary stage, even before the blood is positive, a lymphocytosis may be observed in the cerebral spinal fluid. The frequency of the pathological changes in the spinal fluid increases through the late primary stage until it reaches, in the absence of treatment, something like fifty per cent. in the second and third half years from the time of the initial infection. The course of changes in the cerebral spinal fluid in neurosyphilis may be summarized as follows: 1. The cerebral spinal fluid may remain normal throughout the entire course of the disease; here we can definitely exclude any risk of neurosyphilis early or late. 2. The early pleocytosis may disappear spontaneously or under treatment and Dreyfus says that if the fluid is still normal one year after treatment has ceased, neurosyphilis is improbable. 3. The fluid, after becoming normal, reverts to positive again within a few months. Such fluids can, with difficulty, be brought back to normal again with intensive treatment but they show a tendency to relapse. 4. The parasite gradually acquires better conditions of growth and, after a lapse of many years, parenchymatous degeneration of the brain takes place and persistent positive findings appear in the blood and spinal fluid. 5. Cerebral spinal fluids have reverted from positive to negative and back to positive years after the infection was altered by treatment or not at all. We may regard these differences of be-

havior in the cerebral spinal fluid as an expression of different degrees of the individual's reactions to the spirochete and as to the kind of spirochete present—as authorities believe that there is a neurotrophic type of spirochete present which is capable of invading the central nervous system without invading the other organs of the body.

The serology of syphilis in infancy and in childhood deserves the same consideration as in adults. At birth, the syphilitic infant may have a negative blood Wassermann cord blood included, a weakly positive or it may be strongly positive. After a few weeks or months, all syphilitic infants show a strongly positive blood reaction. In late hereditary syphilis, the blood is positive 88% during the first ten years of life, 63% in the second decade, 43% in the third, and 15% in the fourth decade.

The relation of the serology of neurosyphilis to various therapeutic agents is of considerable interest. Time does not permit a separate discussion of each therapeutic agent used and, therefore, the end results will be presented: 1. Deviations from negative sera and normal cerebral spinal fluids in acute cases of cerebral spinal syphilis, occurring during the exanthematous period, tend to be reduced to normal, parallel with clinical improvement, following intensive treatment. 2. In tabes and paresis there is little or no simultaneous tendency toward a reduction of the diseased serum or spinal fluid to normal, even in cases in which the clinical improvement is striking. 3. The most easily influenced constituent of the diseased cerebral spinal fluid in all kinds of cases is the lymphocytic content; less easily influenced, although still reducible in acute cases, is the increase in globulin and albumin. 4. The colloidal gold curve may be reduced to normal in early cases but is influenced with difficulty by treatment in the latter phases of the disease. 5. The least influenced by treatment is the Wassermann reaction, which tends to be normal in the early or acute cases but seems to be more fixed in late cases than any other of the changed constituents of the cerebral spinal fluid. The colloidal gold tests, including the benzoin modification, seem to follow, rather than precede, such recurrences. The increase in cell count should help to indicate renewed activity of infection of the central nervous system after a

period of negative findings. A single negative serological test does not overrule a clinical suspicion of syphilis. Repeated spinal and blood examinations at six months and one year intervals are advisable.

Conclusion: In conclusion, gentlemen, the future will develop the knowledge of our serological fields as well as the psychological problems of our patients—their strains and their nervous exhaustions. In evaluation of these, however, let me draw your attention to the fact that biological therapy is the first specific and logical therapy the medical profession has ever known. In its field is represented the greatest advance medicine has ever had, and all these in a few years' time. It is here to stay as long as infections remain, and that is endless, because it will broaden and deepen in significance as the years unfold. The physician of tomorrow will be much of a biological therapist in disease and, with the development of the essential knowledge in this, he will be qualified beyond all past generations of medical men, not only as a better therapist, but better in the coming important field of the prophylaxis of disease as well.

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TREATMENT OF CARBUNCLES ON THE BACK OF THE NECK

EVERETT B. WILLIAMS, B.S., M.D., F.A.C.S.
CHICAGO

Carbuncles on the back of the neck should be treated by complete excision of the infected area, using a circular incision, going as far beyond the crest of the carbuncle as possible.

This is rather a sweeping statement in view of the fact that we are dealing with an infected area. The old-fashioned crucial incision, with undermining, hot compresses, and lavage of the wound is still used. To demonstrate the inade-

quacy of the crucial incision one has only to take the carbuncle after it has been completely removed with a circular excision, lay it on the table, and make a crucial incision dividing it into four parts. The carbuncle may be compared to a wheel, with its hub represented by the crest of the carbuncle and its spokes by the channels of infection. (Of course, the infected area is not as defined as the rim of the wheel, neither are the infected channels as straight as the spokes.) The crucial incision will open only four of the channels at the most.

The method of cutting, whether by scalpel or electric cautery, the necessity of subsequent skin grafting and the anesthetic used vary, of course, with the case and the operator. It may not be necessary to go as deep as the fascia of the trapezius or as high up as the trapezius attachment to the occiput.

The advantages of the complete excision method are as follows: 1. It relieves the patient of pain immediately, and gives him much-needed sleep. 2. It rids the patient of the focus of infection. 3. It shortens hospitalization to twenty-four to forty-eight hours. 4. It shortens the time of convalescence, allowing the patient to be out of bed, which is an advantage especially to elderly patients. Incidentally, a Kotex or similar pad tied in front makes a very fine dressing and one that the patient can change himself.

1425 Sherwood Terrace.

TREATMENT FOR VAGINAL TRICHOMONIASIS

OSCAR W. TULISALO, M. D.
ROCKFORD, ILLINOIS

Clinically, a trichomonas infection may be suspected in patients who complain of a leucorrhea, and who have a marked reddening of the mucous membranes of the vagina and vestibule. The discharge has a grayish appearance; there may or may not be an associated cervical erosion; but, frequently, however, no apparent condition of the cervix accounts for the amount of discharge and irritation present. The diagnosis is readily verified by swabbing the vaginal fornices with the cotton applicator, and rinsing this off in a test tube containing about five cc. of normal salt solution. A drop of this is then placed in a hanging drop slide, or under a cover

glass. On examination with a low powered lens, many leucocytes are seen. The trichomonas are ovoid in shape with actively motile cilia setting up currents near them, and moving about by means of these cilia as well as by the dorsal membrane. They are slightly larger than a leucocyte, but are more readily distinguished by their motility. Under high power they can be readily differentiated.

I have had remarkable success in treating this condition in both pregnant and non-pregnant women, with a vaginal jelly known as "Lab-Jel," which the patient can apply herself. The composition of this jelly is as follows: Mercury cyanide 1:3000; Boric acid 3%; Lactic acid 2%; quinine hydrochloride 1%; water miscible emollient q.s. I have used this for more than a year and have had several cases of severe infection with the trichomonas vaginalis. Patients experience a relief of symptoms in two or three days, and within a week the appearance of the mucous membranes has returned to normal.

Gratifying results have been obtained by having the patient instill about a dram of the jelly into the vagina night and morning until the symptoms are relieved, after which she may continue the application once a day for about two weeks. The treatment is perfectly safe in pregnant as well as non-pregnant women.

206 W. State Street.

LIVER ABSCESS (AMEBIC) IN BOY AGED SEVEN YEARS

M. H. STREICHER, M. D.

Department of Surgery, Grant Hospital

CHICAGO

Introduction. This patient was not in contact with any hotel and did not eat in a restaurant at any time. This case is of extreme interest because of its unique method of transmission. When the boy, A. G., aged 7, moved into a new apartment, he apparently occupied a room which was previously occupied by a young girl having a similar ailment. A physician in the vicinity was called to the scene and he diligently treated the boy symptomatically and unfortunately with no success. Several other physicians were called in and inasmuch as the boy grew progressively

worse, he was taken to a children's hospital on April 18, 1933. There, a reputable pediatrician was in charge of the case. Shortly after his hospital stay, the boy was labeled as having a Shiga bacillary dysentery. The stools examined at the pediatric hospital were positive for Shiga bacillus on several occasions.

In brief, the child at this stage had 10 to 15 stools daily with blood, pus, and mucus present, a moderate rise in temperature, an occasional chill, and a substantial loss in weight.

April 25, 1933: I was called to see the boy today.

Proctoscopic examination revealed an advanced ulceration of the colon with considerable tissue pus present, edema, and some hyperplasia. I could not make a differential diagnosis on proctoscopic lesions evident at this examination, and on the basis of positive stools for serum reaction to Shiga, I naturally suggested further symptomatic treatment and whatever treatment was preferential for Shiga bacillary dysentery such as convalescent serums, bacteriophage, blood transfusions, and so forth. Unfortunately, all these suggestions were being applied at a stage when such therapeutic measures are of no avail.

August 30, 1933: I saw the boy again today. He is apparently worse; he weighs 30 pounds; has about 20 to 30 stools daily; his temperature is still very septic in type and is elevated. The chills are more frequent, and the liver border is about two fingers below normal limits. The child became very irritable, and while he tried hard to be exceedingly cooperative, he refused his food, would not rest, and became what is known to the pediatrician as a "bad child." I therefore suggested to the parents that the patient be taken home in isolation. Before he was sent home, the stools were examined and were entirely negative. This concluded 136 days of hospital care in the children's hospital.

At home: Almost immediately upon his arrival at home, treatment for amebic dysentery was started for the first time. The temperature ranged from 105° P. M. to 96.5° A. M. In early October, 1933, he developed a severe reaction going into a toxic coma; his liver area was extremely tender to slight palpation when he revived from the shock, and the liver edge was about 5 to 6 fingers below normal limits. He

was taken to the Grant Hospital on October 18, 1933.

Operation. After due preparation and consultation with a pediatrician, I operated on the boy on October 21, 1933. With the findings as they presented themselves I naturally expected to find a solitary liver abscess on amebic basis, but instead found a multiple suppurative cholangitis.

Contrary to the usual procedure of draining this type of case through the common duct, I chose to drain the cholangitis through the gall bladder. A cholecystostomy was performed and surgical drainage managed for 4 weeks. Simultaneously, the child was treated for amebic dysentery with emetine hydrochloride and followed with emetine bismuth iodide and chiniofon at certain periods when indicated.

Progress. The child remained at Grant Hospital for two weeks and was then sent home in isolation and under proper precautions. The frequency in stools subsided; he ate much better and gained weight right along. A certain amount of mental confusion and lethargy seemed to dominate the child for many weeks following the comatose attack. The temperature took on a lower level but remained septic in type.

May, 1934. To summarize, the boy now has 1 to 2 stools daily with little or no blood present and he has gained about 22 pounds (48 lbs. now); the temperature is 99 or 99.2 and the boy is up and about, out of bed for the first time in 18 months. The liver is still enlarged but has shrunk considerably. During the extreme stage the liver border was seen on the x-ray plate extending down to the crest of the ilium. The stools at present are repeatedly negative for ameba.

July 25, 1934. Patient weighs 56 pounds. Feels fine; is up and about; he has about 2 to 3 natural stools daily and is doing very well. Stool is negative for ova or parasites. Liver border is about 1 finger below normal border level. No medication given at this time. Temperature is normal.

Discussion. The question of dosage of drugs used in amebic dysentery is still problematic and open to discussion. In my experience with 92 cases of amebic dysentery and amebiasis in the adult and 12 cases in children, I would hesitate to outline the dosage for children too dogmatic-

ally. It is a very difficult task. One really has to feel his way at various stages of the disease and act accordingly. For example, a child of one year of age with amebiasis or with dysentery certainly cannot be treated in the same manner as a child of 7 or 8 years of age, and so on. Unfortunately, at the present time no substantial literature is available on the therapeutic dosages for amebiasis in children for comparative purposes so that pioneering as I am will undoubtedly welcome criticism and variance of opinion. In the present case I gave the following dosages: emetine hydrochloride hypo gr. 1/6 two times daily for 10 days followed by a period of rest; emetine bismuth iodide by mouth gr. 1/8 two times daily for 10 days; and finally chiniofon by mouth gr. ii two times daily for 10 days.

The above intervals of 10 days' treatment was invariably followed by a period of rest and a check on several stools. I have used vioform and carbarsone but prefer others for obvious reasons. There is no doubt in my mind that sooner or later if it has not already occurred there will creep into the literature reports to the effect that enemas of various preparations were used to good advantage alone or in combination with therapeutic administrations of drug by mouth. Frankly, I cannot see the rationale of enemas in amebiasis or amebic dysentery any more than I can understand the reason for enemas or irrigations in chronic ulcerative colitis.

In general it is important to be sensible about the dosages used. The very anxious desire to cure the patient often commits the doctor to overtreatment, for very often a case of amebiasis is innocently converted into an amebic dysentery, so please be patient and be satisfied with the lesser of two evils.

Perhaps a word as to diagnosis of ameba on the basis of culture and complement fixation test. From the present status of work reported one is led to believe that the complement fixation test has given more positive comparative results than has been obtained through the culture method. There is one thing, however, that should be mentioned in connection with the complement fixation test: thus far while in general considerable evidence is available to prove the accuracy of this test for ameba, there still is considerable work to be done to determine the

stage of the disease at which the complement fixation test should be applied to obtain optimum results.

307 N. Michigan Blvd.

THE MEDICAL ASPECT OF CHRONIC ARTHRITIS

SAMUEL J. LANG, M. D.

Instructor in Medicine, Northwestern University Medical School, Chicago, Illinois.

EVANSTON, ILL.

Any discourse on chronic non-specific arthritis and in particular one confined to the medical aspect of that condition brings forth a wealth of controversial material. Because of the nature of this program I shall try to confine myself to those subjects which are usually considered to be controversial.

Generally speaking there are two main types of arthritis which are considered to be so dissimilar in incidence, morphology and pathology as to represent different diseases. The type of arthritis variously known as hypertrophic, degenerative or osteoarthritis is recognized almost universally as a noninfectious, combined osseous and chondral degeneration appearing after the fifth decade of life accompanying similar changes in all of the body tissues. The characteristic findings in this type of degenerative arthritis are readily recognized, and the pathological picture is well understood.

The second type of arthritis which is classified by various writers as atrophic, proliferative, infectious or rheumatoid arthritis includes a great number of dissimilar joint lesions. Some degree of inflammation and periarticular swelling is present in practically all of these cases. Included in this group are multiple progressive joint lesions, persistent joint inflammation located in a single joint, and fleeting joint lesions which heal spontaneously. This is typically the ankylosing type of arthritis.

There is no implication that atrophic and hypertrophic arthritis are such separate and distinct diseases as to have no common etiology, pathology and treatment. They have sharp points of difference but in general atrophic arthritis ends at an age where hypertrophic arthritis begins although they may co-exist in the same

patient. They are both often symmetrical and systemic diseases, sharing such common etiological factors as nervous imbalance and various forms of toxemia. Many similar disturbances of physiology accompany each type of the disease, and many observers are agreed that the same type of therapy may favorably affect or cure each form of the disease.

With regard to Etiology,¹ The American Committee for the Control of Rheumatism regards arthritis as a generalized disease with joint manifestations the onset of which may be influenced by a number of factors. Heredity, constitution and body-build may be called basal factors. During the course of life certain influencing factors may be added which cause these persons to become predisposed to develop some form of chronic arthritis. These influencing factors may be mental and physical fatigue; emotional disturbances; faulty body mechanics such as result from overweight, trauma or occupation; possibly a congenitally poor nervous system and a vasomotor imbalance or an alteration of the sympathetic-para-sympathetic relationship; excessive or inadequately balanced food intake, improper utilization of food and in some instances insufficient food; gastrointestinal disturbances; exposure to cold and damp; foci of infection and finally metabolic changes.

The symptomatology, physical findings and the morbid anatomy of this condition are well understood and will not be discussed here.

The treatment of chronic arthritis must be sought through a broad, specifically constructed program, based on knowledge of the disturbances of physiology which cause the disease.

Many individual procedures have resulted in benefit to many arthritics. The beneficial removal of a tooth or a pair of tonsils in some cases has led the physicians to feel that such a measure will offer relief in many or in all cases. There has thus grown up undue enthusiasm in some instances, for certain specific procedures. The use of a given medicine or the injection of some vaccine after occasional successes has often been carried to extremes with resulting disappointment to both patient and physician. It is clear that factors other than infection may operate to induce and perpetuate this disease. In view of the wide disturbance of physiology and the secondary invalidism dependent upon it, it is obviously impossible that any single measure

¹Read before the Evanston branch of the Chicago Medical Society, October 5, 1933.

could be adequate to restore this state of affairs to normal. There is no single panacea in the treatment of arthritis.

A brief outline of some of the useful therapeutic measures include *rest* as one of the most important factors in treatment. Not only is physical rest required but one must seek to correct the psychic and emotional faults which these patients so frequently harbor.

Correction of Faulty Body Mechanics. The mere reduction in weight of an obese individual is frequently all that need be done to relieve that patient of pain. Similarly we have seen underweight and undernourished arthritics lose their pain and in some instances reduction of periarticular swelling upon gaining weight and following certain other simple hygienic measures.

Drugs are used for relief of pain, the correction of secondary anemias and in certain metabolic disturbances. Generally speaking arthritics in the past have been the victims of drugs rather than the beneficiaries thereof. We have found it necessary to use analgesics but rarely. The so-called tonic and hematinic drugs are beneficial in some instances. Glandular extracts are at times almost specific for the relief of pain.

Dietary adjustment to insure optimal nutrition for the individual case is essential. A curtailment of carbohydrates is often useful, especially of concentrated starches and sweets and should be accompanied by an adequate amount of food rich in vitamins supplied in the proper proportion.

Much has been written about the *gastrointestinal* tract in chronic arthritis. Fletcher,² Richards and Dickson, Pierce and Pemberton³ all describe what they call characteristic configurations of the colon in this disease. In fifty cases studied in this manner Dr. James Case and I have been unable to corroborate the findings of these workers.

The combating of focal and general infections is a subject wherein great difference of opinion exists. There can be no doubt that the removal of foci of infection in certain selected cases is indicated and we believe that such foci should be diligently sought for and eliminated as early in the course of the disease as possible. However, many of the patients coming to us have already had many or all of these supposed foci removed with no relief from pain and in some cases with marked exacerbation of symptoms and subsequent disabling deformities. Arthritics who have

carried their foci for several years usually receive little if any benefit from their removal, whereas the prompt removal of these areas of infection early in the disease often yields striking results. It seems wiser to consider these foci, when they exist, as one of the influencing factors as mentioned earlier, rather than the sole cause of the disease.

The use of vaccines is perhaps the most explosive of the controversial subjects.

The American Committee report states that, "The wide use of nonspecific protein and vaccine therapy in the past has been referable in part to the fact that most of the professions have not known what else to do." As a matter of fact, most of us who treat arthritis use some form of autogenous or stock vaccine and it would seem that certain types are relieved of their symptoms in this manner. We have used the intravenous streptococcus vaccine in 53 cases principally of the atrophic or mixed types. Subcutaneous autogenous vaccines have been used in a smaller number of cases. Swift,⁴ Hitchcock, Derick and McEwen⁵ demonstrated that in cases of rheumatic fever the patient was in a state of hyperergy and that this could be controlled by intravenous rather than by subcutaneous injections. Swift,⁴ Gray⁶ & Gowen and Clawson⁷ showed by animal experiments that injections of streptococcus vaccine into tissues tended to sensitize while intravenous injections tended to desensitize the tissues. If the results of these investigators can be relied upon it would seem that if vaccines are to be used at all the intravenous route would be the method of choice. Whether any of these methods actually immunize against streptococci remains unproven.

The following is a summary of the results obtained in 100 patients at the Evanston Hospital Arthritis Clinic during the past year.

47% were classified as Atrophic or Rheumatoid arthritis.

21% were classified as Hypertrophic or Denerative arthritis.

28% seemed to be a Mixed type.

Upon admission to the clinic pain as a symptom was divided into 4 classes:

1. Mild—those with occasional pain.
2. Moderate—those with constant pain.
3. Moderately severe—those with pain requiring salicylates.
4. Severe—those confined to bed with pain and requiring salicylates.

The degree of final improvement was divided into 5 classes:

1. No—those in whom there was no change in the condition.

2. Uncertain—those in whom the symptoms fluctuated and who showed no constant progress.

3. Slight—those having occasional attacks of pain but of decreasing severity.

4. Moderate—those with marked general improvement but still having a few tender areas and fleeting pains at times.

5. Marked—those with complete cessation of pain, absence of stiffness, restoration of the normal weight, etc.

Upon admission to the clinic in 100 cases:

21% were classified as Mild.

36% were classified as Moderate.

22% were classified as Moderately Severe.

17% were classified as Severe.

With regard to final improvement:

21.5% received *no* improvement.

11.8% received *uncertain* improvement.

7.5% were *slightly* improved.

17.0% were *moderately* improved.

43.3% were *markedly* improved.

If we combine those markedly and those moderately improved we find that 60% received unmistakable evidence of improvement.

When the improvement with regard to the various types is further dissected we find that in the

22 Mild forms—

13.6% showed no improvement.

36.4% showed uncertain improvement.

13.6% showed slight improvement.

13.6% showed moderate improvement.

22.7% showed marked improvement.

35% of these showed a great deal of improvement.

31 Moderate forms—

19.3% showed no improvement.

9.7% showed uncertain improvement.

3.0% showed slight improvement.

26.0% showed moderate improvement.

42.0% showed marked improvement.

68% of these were greatly improved.

22 Moderately severe forms—

32.0% showed no improvement.

6.0% showed uncertain improvement.

6.0% showed slight improvement.

4.5% showed moderate improvement.

46.0% showed marked improvement.

50% of these were greatly improved.

17 Severe forms—

24.0% showed no improvement.

None were uncertain in improvement.

None were slightly improved.

12.0% showed moderate improvement.

64.0% showed marked improvement.

76% of these were greatly improved.

With the use of diet alone in 71 cases over a period of 3 months—

40.0% showed no improvement.

8.5% showed uncertain improvement.

9.5% showed slight improvement.

12.0% showed moderate improvement.

28.0% showed marked improvement.

40% of these were greatly improved.

With the combined use of the diet and vaccine in 53 cases—

28.0% showed no improvement.

13.0% showed uncertain improvement.

1.9% showed slight improvement.

19.0% showed moderate improvement.

38.0% showed marked improvement.

57% of these were greatly improved.

Of those who showed *no* improvement while on the diet and on whom vaccine was subsequently used (there were only 16 such cases)—

None remained unimproved.

25.0% showed uncertain improvement.

6.3% showed slight improvement.

19.0% showed moderate improvement.

50% showed marked improvement.

69% of this small group appeared to improve a great deal when vaccine was used.

I have one or two additional interesting sets of figures:

Of the 39 cases that remained unimproved or only slightly improved—

31.0% were cooperative and attended for the full 6 mos. period.

5.0% were uncooperative but attended the full time.

64.0% were uncooperative and stopped too soon.

Of those moderately improved—

76.5% were cooperative and attended well.

17.5% were uncooperative and attended the full time.

5.8% were uncooperative and stopped too soon.

Of those markedly improved—

89.7% cooperated well and attended the full time.

2.6% were uncooperative but attended the full time.

7.7% were uncooperative and stopped too soon.

SUMMARY

1. The majority of cases of chronic arthritis fall into one or the other of two great groups or a combination of the two.

2. There is a preponderance of evidence indicating that rheumatoid arthritis is frequently infectious in type and that hypertrophic arthritis is a degenerative disease.

3. The rational treatment of chronic arthritis should be based on a broadly constructed program seeking to build the patient to the optimum state of nutrition.

4. Vaccines seem to be of use in some cases.

5. In our series 60% of all cases showed improvement and of these 43% were markedly improved.

6. 90% of those who were markedly improved

were persistent and cooperative during the course of treatment, while 64% of those who were unimproved were uncooperative or discontinued treatment before the end of the 6 month observation period.

636 Church St.

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Eli Lilly and Company, generously furnished the Intravenous Streptococcus Vaccine used.

THE IMPORTANCE OF NEPHROSCLEROSIS IN THE TREATMENT OF URINARY OBSTRUCTION

GEORGE MILLES, M. D.,

CHICAGO

The influence of benign nephrosclerosis on the clinical picture in cases of obstruction of the urinary tract as is seen commonly in prostatic hypertrophy is one which is generally recognized. It is my purpose to place emphasis upon certain of the more important phases of this question.

The term "benign nephrosclerosis", or "benign arteriolar sclerosis of the kidneys" is preferable to its older synonym "chronic interstitial nephritis" because it not only indicates the pathology but also emphasizes the primarily degenerative rather than inflammatory process occurring in the kidneys.

The pathogenesis of this condition has been clarified by the studies made at various stages of the process. It is primarily an arteriolar spasm of renal vascular bed which may be local or part of a general condition and of the nature of a fatigue reaction. As the process continues, hypertrophy or degeneration of the vessel wall, or both, results. Thus the muscular elements in the media hypertrophy, the intima proliferates,

and finally a gradually developing ischemic degeneration sets in. The resulting hyaline changes and fibrosis in the intima, media, and adventitia produce more or less complete occlusion of these important vessels. The process varies widely in tempo but is usually extremely slow.

The degenerative changes in the parenchyma of the kidneys are identical to those which would occur in any other organ or tissue under similar circumstances. With the gradual interference with the blood supply the more highly specialized and more rapidly metabolizing tubular epithelial cells undergo slowly progressive atrophic degeneration and the less differentiated and metabolically more sluggish cells of the connective tissue proliferate. Concomitantly, the glomerular tufts degenerate and are replaced by hyaline scar tissue. The resulting picture is one of obliteration of a variable percentage of the glomeruli, atrophy of the tubules and proliferation of the interstitial connective tissue. At this stage the arterioles present the changes already described.

Round cell infiltration in the interstitial tissue is a common associated finding and because of this pathologists formerly considered the condition to be a primary interstitial inflammation. However, this cellular infiltration occurs only secondarily and as an incidental process the result of either degenerative changes or the acute changes occurring with renal decompensation.

From the functional standpoint it has been shown by Richards¹ that a variable number of glomeruli are open with blood circulating through them at any given time. If we assume that 25% of the glomeruli are functioning at a particular moment the remaining 75% are in a resting contracted phase. From moment to moment the glomeruli in various parts of the kidney dilate and secrete, constrict and rest. This would indicate a potential renal reserve of at least 75%.

It is obvious that during the day with the increased metabolism, associated with the normal activity of the individual, the number of glomeruli functioning is greater than at night, during the resting phase of the organism. The kidneys with their normal flexibility of function are capable, during the hours of activity, of excreting waste products, maintaining the chemical balances and in general meeting the

From the Department of Pathology and Bacteriology, University of Illinois, College of Medicine.

demands made upon them as they arise, allowing a marked diminution in activity, and therefore in urinary secretion, during the night.

In the presence of a slowly progressive process which involves destruction of glomeruli here and there, the surviving units must increase the amount of work they perform in order to fulfill the demands in the manner of normal kidneys. While they are able to do this by means of their potentialities of hypertrophy and by increasing the length of time during which they function, it is apparent that the margin of safety or reserve of the organ as a whole is concomitantly reduced. Thus, if we assume that half of the glomeruli have been destroyed in a given pair of kidneys the surviving glomeruli must function twice as actively in order to maintain renal compensation. This, however, still leaves a small reserve of 25%.

Under these circumstances any additional strain placed upon the kidneys, may dissipate the reserve, and then actual renal decompensation would ensue. Reduction in the available oxygen such as would result from heart failure with its attendant circulatory failure and drop in blood pressure would accomplish this. Similarly, mechanical obstruction to the outflow of urine such as occurs in prostatic hypertrophy with obstruction places an added burden on the urine secreting mechanism. It is apparent that the smaller the reserve the smaller is the added insult necessary to induce renal failure. Ultimately, the marked alterations in the status of the vascular bed attendant on the ordinary environmental fluctuations such as meteorological changes² may be sufficient to overtax a minimal renal reserve. We have demonstrated the importance of this factor by daily studies of the urine and blood pressure. We have been able to correlate the fluctuations occurring in meteorological conditions with the degree of albuminuria and blood pressure. The latter changes are dependent upon changes in the permeability of the capillary bed and the state of the arteriolar bed which in turn is determined by the amount of oxygen available to these labile structures.

It is important to recognize these factors in the causation of the renal decompensation in benign nephrosclerosis. The first, and of course the more important factor, is the pathology in the kidney itself.

The second is cardiac decompensation with its diminished rate of circulation, lower blood pressure and lowering of available oxygen. This requires some further consideration. It is dependent upon the fact that renal arteriolar sclerosis is not a pathologic entity limited to the kidneys but is merely one phase of a generalized process which is more apparent in the kidney because of the organ in which it occurs. The arteriolar changes are not limited to the kidney and if diminution in the caliber of the arteriolar bed is sufficiently widespread increased resistance to the circulation gradually develops with elevation of the diastolic pressure. In order to overcome this mechanical obstruction the systolic pressure increases and the heart hypertrophies. The same arteriolar sclerosis occurring in the coronary bed limits to some extent the degree to which the heart may hypertrophy and ultimately the limits of hypertrophy having been reached, the heart fails. This need not be abruptly. Ordinarily it is gradual, and concomitantly insufficiency of the renal circulation slowly develops.

The third factor, the obstruction to the urinary outflow by its mechanical interference with the renal function results in further degeneration of the tubular elements and glomeruli, and also interferes with renal function mechanically. Thus, either or both of these secondary factors superimposed upon a preexisting diminished renal reserve may precipitate renal decompensation.

Any treatment directed at the renal decompensation must take all of these factors into consideration. In the first place, the most obvious factor, the urinary obstruction, secondly, the cardiac factor, and third, the generalized vasoconstriction, are present as part of the general pathology of arteriolar sclerosis and aggravated by the same factors which have aggravated the renal injury. It is not within my province to discuss the treatment of the obstruction.

The cardiac decompensation, when and if present, requires, above all, rest. If the heart is fibrillating, digitalis should be given in adequate amounts. Even in the absence of fibrillation, so-called tonic doses of digitalis, to take a cue from Christian³, may be of distinct value.

Finally, the generalized vasoconstriction should be attacked by the methods that were employed

empirically by the older clinicians, namely, by methods that induced peripheral vasodilatation. Of the various means used to attain this end, the simplest and most effective are physiotherapeutic, particularly hot packs properly administered. The use of ultra violet light in sufficient dosage to obtain an erythema is probably of some value and similarly diathermy, with its tendency to induce dilatation of the peripheral vessels, may be useful.

One must keep in mind that the same vascular damage which is causing the pathology we have already discussed has resulted in changes in the whole organism and of special importance in connection with the subject under consideration is the gradual diminution in carbohydrate tolerance encountered in a large number of aging individuals as has been so ably demonstrated by Romcke⁴. It would be wise, therefore, during the prolonged wait commonly necessary following preliminary drainage of the bladder to study the individuals' carbohydrate tolerance and adjust their diet and if necessary supplement it with adequate doses of insulin to give them a fairly large amount of available carbohydrates.

SUMMARY

1. Benign nephrosclerosis occurs to a greater or less degree in practically all individuals suffering from benign hypertrophy of the prostate.

2. Benign nephrosclerosis is a slowly progressive degenerative process of the kidneys which reduces the renal reserve.

3. Myocardial hypertrophy and sclerosis are frequently associated with these processes, further impairing renal function as the result of the resultant impairment of circulation.

4. The urinary obstruction with the cardiac and circulatory changes described may easily precipitate renal insufficiency.

5. Sugar metabolism is frequently impaired with or without clinical diabetes in older individuals.

6. These factors must all be taken into consideration in the treatment of all cases of urinary obstruction, more especially those due to prostatic hypertrophy.

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POLLEN CONTAMINATION OF THE AIR IN ILLINOIS

O. C. DURHAM

NORTH CHICAGO, ILL.

My previous study of Illinois hay fever pollens has included atmospheric research only at Chicago and at the border city of St. Louis.¹ It is obvious that conditions of air contamination at Chicago are not necessarily typical of those elsewhere in the State. With the idea of securing comparative data from other parts of the state, two new localities, Springfield and Peoria, were investigated during the fall of 1934. Thus with simultaneous studies at Chicago, Peoria, Springfield and St. Louis, we had during the past season for the first time a line of four stations distributed diagonally across the state.

Daily records of all pollens in the air were obtained in each city by the usual method of identifying and counting the pollen granules found on a unit area (1.8 sq. cm.) of vaseline-coated microscope slides that were exposed face up for twenty-four hours. All exposures were made by uniform methods by the local observers of the United States Weather Bureau in each city. The study was carried on from August 10 until September 30.

The Chicago slides were exposed on the Federal Building in the "loop," 140 feet above the street. The St. Louis slides were also exposed at a high level—265 feet. Those at Peoria and Springfield were exposed near the ground in the business part of the city and therefore not near enough to local weed growths to be directly contaminated by surface-blown pollen.

Comparative ragweed records for the four cities are shown in Table 1. Complete figures for all types of pollen for the season are shown only for Springfield, Table 2, as this point is near the center of the state and because the records at the other places are not very different. This may be seen from the summary, Table 3.

This study again emphasizes the outstanding importance of the two common ragweeds as factors in fall hay fever in Illinois. The fall hay fever season and the ragweed hay fever season in this state are practically synonymous. More ragweed pollen was found in Peoria than in the other three places. The reason for this is not

From the Botanical Laboratories of Abbott Laboratories,

apparent, as local conditions appear to be about the same in all four places. Moreover, the difference in the totals is probably unimportant from a practical standpoint.

The season began and ended in each place at about the same time. Except in Chicago, the daily fluctuations in the amount of pollen in the air were much the same in each place. From this it seems reasonable to conclude that general weather conditions rather than local weather conditions, or local weed conditions determine the major "ups and downs" in the amount of pollen found on the slides. That the Chicago figures are frequently at variance with those of the other three places is due largely to the effect of Lake Michigan, which acts as an effective barrier against pollens from the east and northeast. Thus it happened that outside of Chicago, the climax of the ragweed season was reached on August 28, when fresh winds blew from the northeast. On that day there was very little pollen in the air in Chicago.

While seven species of ragweed may be found growing in Illinois, only three kinds are of state-wide distribution and only two of these—short ragweed and giant ragweed—are heavy producers of pollen. Cocklebur is found in all parts of the state, but the plants are not nearly so numerous as those of the common ragweeds, and they do not produce pollen abundantly. The pollen of cocklebur is easily identified and is differentiated from that of other ragweeds in this report. The pollen grains of the two common ragweeds are so similar that no effort was made to determine what part of the amount found was from giant ragweed and what part from short ragweed. Since the former plant is found only in moist soil, it is altogether likely that the greater proportion of the ragweed pollen in the air during the fall is from short ragweed. Burweed marsh elder plants are abundant only in the Chicago region, but even there pollen is found in the upper air only in very small amounts. At St. Louis, some of the ragweed pollen may be from southern ragweed, but the proportion cannot be large. A separate count of this kind of pollen could not be made. Other species of ragweed than those mentioned above probably contributed nothing to the ragweed totals reported in this study.

Russian thistle cannot be considered an important hay fever plant in Illinois, as it cannot

TABLE 1

THE RAGWEED SEASON IN ILLINOIS

Aug.	Chicago	Peoria	Springfield	St. Louis
1934				
10		22	36	6
11	3	17	22	13
12	26	28	10	10
13	29	86	36	9
14	4	129	57	9
15	8	2	7	5
16	17	56	80	10
17	5	66	37	6
18	83	320	140	33
19	232	683	342	345
20	3	220	111	109
21	89	202	74	30
22	142	315	140	154
23	402	798	339	94
24	330	923	610	347
25	375	159	158	57
26	318	284	63	78
27	248	484	147	99
28	26	1117	780	961
29	33	688	641	637
30	602	515	509	460
31	676	641	279	450
Sept.				
1	490	269	214	441
2	77	216	321	378
3	292	668	391	400
4	1006	467	229	355
5	173	216	98	270
6	43	688	375	623
7	161	409	602	887
8	15	362	189	222
9	248	247	289	391
10	456	338	142	372
11	233	87	250	186
12	550	290	134	90
13	388	155	91	40
14	92	46	52	212
15	164	210	163	264
16	104	54	57	48
17	51	30	26	56
18	34	21	48	108
19	80	85	74	184
20	108	65	49	130
21	91	14	10	42
22	4	8	1	16
23	4	6	7	7
24	24	3	16	15
25	35	32	26	47
26	26	21	25	53
27	10	1	2	3
28	1	2	7	16
29	3	4	..	5
30	2	3	6	9
TOTALS,				
1934	8625	12773	8512	9792
TOTALS,				
1933	7249	.....	.....	11293
Average Total,				
1929-1934	5681	.....	.....	7408

The above figures (except totals) represent the number of granules of ragweed pollen falling in 24 hours on a slide area of 1.8 sq. cm.

hold its own against native weeds, except in the very poorest soil. It must, however, be regarded as a possible local factor in hay fever wherever there are abundant local growths of the plant. The amount of this kind of pollen found on Chicago slides this season was more than has been found heretofore. There is a possibility that

most of the Russian thistle pollen found in Chicago as well as downstate this past season, was blown from western Iowa or the Dakotas.

Lamb's quarters is abundant throughout Illi-

nois. It is far more abundant than any other plant of the botanical group to which it and the pigweeds belong. A very large proportion of the chenopod and amaranth pollen, other than Russian thistle, found in this survey is probably from lamb's quarters.

The grass pollen recorded in the tables is more likely from crab-grass. Like ragweed it is particularly abundant on grain fields after harvest.

Hemp should be regarded as a possible local hay fever offender because of its habit of rank grown and excessive production of pollen. That goldenrod and similar insect-pollinated composites are of no importance in hay fever is emphasized by the almost complete absence of composite pollen from the slides.

It is hoped that the tables will be found useful in interpreting skin tests and in planning pollen treatment schedules not only in the localities studied, but throughout the state.

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TABLE 3
POLLENS FOUND IN THE AIR DURING
AUGUST AND SEPTEMBER, 1934

	Cocklebur	Burweed Marsh Elder	Other Ragweed	Russian Thistle	Other Chenopod and Amaranth	Grass	Corn	Hemp	Sage	Composite	Misc.
Chicago											
Total	2	12	8611	65	225	25	6	2		3	29
Per cent.....			97%		2%						
Peoria											
Total	10	1	12762	57	269	104	1	33	2	6	18
Per cent.....			97%		2%	1%					
Springfield											
Total	7		8505	34	186	87	1	18		9	26
Per cent.....			97%		2%	1%					
St. Louis											
Total	19		9773	14	749	35	1		9	5	26
Per cent.....			93%		7%						

The total figures above are obtained as from the foot of Table 2 and represent the number of granules of pollen falling during the season on a slide area of 1.8 sq. cm.

BOTANICAL NAMES OF PLANTS MENTIONED IN THIS STUDY

Short Ragweed..... Ambrosia elatior
Giant Ragweed..... Ambrosia trifida
Cocklebur..... Xanthium spp.
Burweed Marsh Elder..... Iva xanthifolia
Southern Ragweed..... Ambrosia bidentata
Russian Thistle..... Salsola pestifer
Lamb's Quarters..... Chenopodium album
Hemp..... Cannabis sativa
Crab-grass Syntherisma sanguinalis

TABLE 2

POLLENS FOUND ON ATMOSPHERIC SLIDES
AT SPRINGFIELD, ILL., AUGUST AND
SEPTEMBER, 1934

	Cocklebur	Other Ragweed*	Russian Thistle	Other Chenopod and Amaranth	Grass	Corn	Hemp	Composite	Misc.
Aug. 1934									
10		36							
11		22		1					
12		10			1				
13		36	12	10	2		1		1
14		57	2	7					2
15		7		1					
16		80		1					
17		37	4	7					
18		140							
19		342	2	11	3		2		
20		111	1	2					1
21		74	3		1				
22		140	1	8			1		
23		339		6					2
24		610		7	2				
25		158	1	3			5		2
26		63	1	4	1		3		
27		147		8					1
28		780		13	3		1		
29		641		2	2				
30		509		2	3				
31		279		2	3		2		
Sept.									
1	1	213	2	5	4				
2		321		2			1		
3		391		3	3		1		
4	1	228		13	6				2
5		98	1	2	1				1
6		375		5	2				
7		602		1	4				
8		189		4	1				
9		289		7	4				
10		142		1	1				1
11		250		1	1				
12		134		2	1		1		6
13		91		3	3				
14		52			1				
15		163		3	2				1
16		57	1	2					2
17		26							1
18	2	46	3	4	4			6	
19		74		5	6			2	
20	1	48		4	1				
21		10		2					
22		1		1					
23		7		1	2				2
24		16		3					
25	2	24		5	17			1	1
26		25		5					
27		2		1	1				
28		7							
29				6	1				
30		6							
Total	7	8505	34	186	87	1	18	9	26

*Mostly short ragweed and giant ragweed.

The above figures (except totals) represent the number of granules of pollen falling in twenty-four hours on a slide area of 1.8 sq. cm.

NOISE

EDWARD PODOLSKY, M.D.

BROOKLYN, N. Y.

With the coming of the Machine Age came noise, a whole orchestra of strident discords, clangs and clashes, a cacophony of whistles, horns, rattles, sirens, rivetings and lusty roars. To many noise meant progress; more noise, more progress. Civilization moved along, shod in sandels of steel, tramping lustily and heavily. In the cities where the benefits of civilization are more in evidence they are more noisily in evidence: airplanes roaring overhead, street cars, motor buses, automobiles, their engines grinding out a mechanical tone poem of motion; subway trains underground, clanging along on steel rails; factory whistles, traffic cops, peddlers, rending the air hideous with an ungodly melange of shrieks, screams, groans and roars. As if this is not enough, magnovoxed radios send out a constant, interminable blare, day and night, of jazzy orchestras, throaty tenors, screechy sopranos and crazy elocutors to mingle with the already noise-stifled air.

To many this is the necessary voice of the modern city, the growing and active city. There are many strange creatures who actually love noise; they thrive and grow fat on it. Schopenhauer, the great German philosopher, had some rather confirmed ideas about noise and noise makers. He believed their brains to be of a very coarse and rough quality. This pessimistic genius hated noise and believed that most of the misfortune of the world could be laid to it. People of high quality had invariably been noise-haters, and Schopenhauer mentioned the cases of Goethe, Lichtenberg, Kant and Jean Paul as illustrative examples.

The Prince of Pessimism enumerated a variety of noises he could not stand: hammering, the barking of dogs, the crying of children, but he hated most vehemently the cracking of a whip. His mind delighted in devising the most fiendish corporeal punishment for whip crackers.

Schopenhauer was firmly convinced that the German nation was the noisiest on earth and applauded Thomas Hood for saying of them: "For a musical nation, they are the most noisy I ever met with." Each noise hater is under the impression that his own street is the noisiest in the world. Bronzino, a famous Italian painter,

in his work *De' Romori: A Messer Luca Martini*, gives a detailed description of the torture to which people are put by the various noises of a small town.

In fact, in our own troublous Epoch of Noise there are many who profess that each city of mankind has its own particular noise. Anita Loos, through the mouth of one of her characters says that Paris has a feminine sound, while New York's voice is masculine. There are many who will not make any such fine distinction. To them the noise of any city is the roar of the Devil.

They may be right after all. Recently Drs. Earl W. Flosdorf and Leslie A. Chambers found that sounds were capable of bringing about definite chemical changes. They found that shrill sounds projected into a liquid medium coagulated proteins, broke down ethyl acetate to produce acetic acid, cracked vegetable oils with the generation of acetylene gas, and to a slight extent even changed starch into sugar. They demonstrated in a spectacular way that an egg could be soft boiled in a few moments when subjected to the effects of intense sound, without raising the temperature. Before this it was found that sounds in the range of the supersonic region could actually kill bacteria.

Is it any wonder, then, that some people could be driven to insanity, to desperation and suicide by incessant noise. Recently in the newspapers was reported the case of a woman crippled by rheumatism who was confined to her wheel chair in her home in one of our larger cities. The constant blare of the magnovoxed radio next door finally drove her into a frenzy of despair. She wheeled herself over to the window and let herself over the sill into the oblivion of a noiseless death. Wasn't Schopenhauer right after all when he said that people who could stand noise must have a horny layer which noise cannot penetrate?

If noise can boil an egg and kill bacteria and coagulate proteins it can certainly bring about changes in the human brain, which after all, is made up of proteins. This is significant in view of the work of Dr. Freeman, an eminent brain specialist, who maintains that insanity is often brought on by chemico-physical changes in the brain. Noise can quite conceivably bring these changes about. It is no mere coincidence

that the majority of the inmates of our insane asylums come from noise saturated cities.

Noise is becoming a serious problem. It is beginning to attract the attention of physicians and health authorities throughout the world. In New York City the Mayor's Noise Abatement Commission several years ago, after devoting a great deal of time to this menace, reported in brief that the continual pressure of strident sound to which New Yorkers are subjected tends to produce impairment of hearing, to introduce harmful strains upon the nervous system, leading to neurasthenic and psychasthenic states, to cause loss of efficiency of workers and thinkers, and finally to interfere so gravely with sound, refreshing sleep that rest is difficult and in some cases impossible.

Many years ago Dr. Walter B. Cannon, of Harvard, found that noise may seriously affect the normal digestive functions and in this manner be the cause of nervous indigestion. He did his classical experiments with cats and x-rays and proved conclusively that loud noises were enough to halt or disturb the normal digestive rhythms of the stomach. Later, the acoustician, E. Lawrence Smith went several steps further. He measured noises in degrees of intensity and found that noise at the level of 60 decibels and a decided effect in deranging digestion.

A little later Dr. Donald A. Laird undertook to study the effects of noise on digestion. Early in his investigation he found convincing proof that the loud noises which are an inseparable phenomenon from our modern civilization play an important part in causing nervous indigestion by decreasing the flow of both saliva in the mouth and gastric juice in the stomach.

Dr. Foster Kennedy has shown most spectacularly that noise has a definite effect on the the brain. Through the use of a device, measuring actual increase of pressure on the brain, in experiments carried out at Bellevue Hospital, Dr. Kennedy discovered that the bursting of a blown-up paper bag raised the pressure higher than morphine or nitroglycerine, the two most powerful drugs known for increasing the pressure within the brain. The paper bag explosions raised brain pressure four times normal, with a second interval before returning to normal pressure.

Dr. Charles Warren, an eminent British ear specialist, particularly interested in the effects

of noise on the ears found that persons living in noisy surroundings developed some interesting changes in the hearing apparatus. Continuous noise was found to produce thickening of the ear drum with a subsequent loss of movement. There was also a stiffening of the small bones within the ear and a loss of movement of their part. The cartilage around the aural window was also found to thicken with a loss of motility. The hearing nerve itself finally became exhausted with a subsequent failure to transmit sound in all its niceties. There was only one outcome to this; gradual loss of hearing, and in pronounced cases even total deafness. Today, New York cab drivers who ply in the most congested areas of the city where there is a constant blare of auto horns are becoming hard of hearing.

Occupational deafness is becoming more and more common, and as our cities become noisier there is an increase in occupational deafness among printers, bus drivers, road makers and traffic policemen. Not only does the continual pressure of strident sounds to which these workers are subject tend to produce impairment in hearing, but there is also a strain on the nervous system which leads to neurasthenia and other ills.

Street noises are for the most part non-rhythmical and the ear cannot be adjusted to them very readily. This gives rise to anger and other disturbing emotions. This is one of the potent reasons for the dire effects of noise on the delicately attuned nervous system.

It has been noted that there has been a decline in the birth rate in all civilized countries coincident with the Machine Age. The birth rate in England and Wales in 1877 was 36.2 per 1000; in 1928 it was only 16.7. From similar high rates in the United States it fell to 18.2; in France to 18.2; and in Germany to 18.6. Wherever machine civilization and its necessary noise is not a factor the rates have remained high. In Ceylon in 1828 the rate was 40, and in Egypt it was 43.3. Students of the noise problem have assigned to noise a very important part in causing this decline.

The rising incidence of mental disease noted in all civilized countries in recent years is even more serious than the declining birth rate. In this county the inmates in the institutions outnumber those in hospitals for all other causes.

It is not an exaggeration at all to say that quite a few cases of insanity are caused by nervous systems which cannot adjust themselves to the constant bombardment of noise.

Edison said that city noises must inevitably grow greater and that the man of the future will be deaf. Without accepting the pessimistic doctrine that the ultimate destiny of the city dweller is deafness, we must recognize that the noises of the civilized world are steadily on the increase. Not only are new machines being made daily with a consequential increase of incidental noises but machines are even being devised and are coming into use, which make the increase or magnification of sound their main purpose. Such is the price of this noisy civilization.

All city noises range in intensity from 45 to 75 decibals, and it is this range which plays havoc with almost all human functions. The problem is one which demands the attention of engineers, and already some good results are in evidence. It is being realized in some quarters that noise in machinery means inefficiency. Automotive engineers particularly seem to realize this, as do also the makers of typewriters. Noiseless typewriters add to efficiency in business. The automobile manufacturers have succeeded in eliminating gear clash and the noisy second gear. Aviation engineering has devised sound proof cabins so that the passengers will not be annoyed by the constant roar of the engine.

Other heartening advances along this direction are insulating materials to deaden outside noises which modern architects are embodying in the construction of the modern home. Air conditioning apparatus and noise eliminating devices are becoming popular in all the large noise saturated cities. It is doubtful if noise will ever be completely eliminated. It may be, perhaps, toned down to ranges which will not have any harmful effects. When this is accomplished one of the greatest achievements in preventive medicine will have become a reality.

The person who has to earn his living in a noisy element should always live in the quiet retreats of the suburbs or in some strictly residential neighborhoods in which noise is practically non-existent. Vacations should be spent in the quiet country among the soothing sounds of Nature. Periodical absences from noise laden surroundings will accomplish wonders in a great many cases of neurasthenia or even psychasthe-

nia. There is no doubt that the noise problem is one of the greatest that the modern health work has to solve.

7119 Nineteenth Ave.

TISSUE HEATING BY SHORT WAVE DIATHERMY: SOME BIOLOGIC OBSERVATIONS

Bernard Mortimer and Stafford L. Osborne, Chicago (*Journal A. M. A.*, April 20, 1935), performed experiments on twelve anesthetized dogs and on the thigh of eight human subjects to study and measure the heating effects of short wave diathermy and to observe any other changes that might occur. Five short wave machines were used, a 6 meter, 15 meter, 16 meter, 24 meter, 25 meter and the conventional spark-gap diathermy. There is no conclusive evidence from the literature nor were they able to substantiate the claim of specific biologic action of high frequency currents (short wave diathermy). In their opinion the burden of proof still lies on those who claim any biologic action of these currents other than heat production. The experimental work that claims specific bactericidal action for these high frequency currents may be more rationally explained, they believe, on the basis of "point heating," which raises the temperature of the micro-organisms above their thermal death point without a corresponding elevation in the temperature of the medium. It still remains to be demonstrated whether such test tube results can be secured with infection in the body. Their own work on the machines shows that there is a thermal gradient from the hot skin to the less hot tissues within. There is no evidence from reliable experimental work on living subjects that short wave diathermy possesses a more uniform penetration of heat into the body than the conventional diathermy. The possibility of special selective thermal action is a very remote one. They do not believe that it is possible to predict the response of the body to high frequency currents from phantom model or other in vitro experiments.

HOSPITAL: ECLAMPSIA

Bernard Fantus, Chicago (*Journal A. M. A.*, April 20, 1935), describes the therapy of eclampsia as it is practiced by the attending staff of the Cook County Hospital. The prophylaxis of eclampsia is an important part of antepartum care. It requires routine examination every two weeks, during the last months, of blood pressure, urine and body weight, and for edema. Eradication of foci of infection, especially by dental care, should be insisted on. When convulsions are present, an emergency exists that requires immediate and constant attention. If the convulsion occurs at home, morphine (even 0.03 Gm.) should be given immediately by hypodermic injection, to quiet the patient during transfer to the hospital. The indications may be classified as (1) sedation, (2) hypohydration, (3) support and (4) operation. As in any severe case of preeclamptic toxemia convulsions may occur from twenty-four to forty-eight hours after delivery, sedative and other measures as described should be con-

tinued for several days. It is well to give as a routine, soon after labor, a hypodermic injection of 0.015 Gm. of morphine sulphate. Blood pressure readings and the urinary output should be recorded daily. The blood should be examined for nonprotein nitrogen retention. The low protein and salt poor diet should be continued until edema has disappeared. Then fluid should be given freely, provided the kidney can respond to the appeal. If the blood pressure and urine do not return to normal within two weeks after delivery, the therapy of nephritis is indicated.

URINARY ANTISEPTICS

Among the older dyes advocated as urinary antiseptics are proflavine and acriflavine. In moderate doses these dyes do not appear to produce any toxic symptoms and that they do exert some definite action on the urine is indicated by the very evident color after ingestion by mouth. The clinical results obtained from their use, especially in cases which have not responded to other means of treatment, are satisfactory in a sufficiently high percent of cases to warrant their being considered as urinary antiseptics.—Dr. A. D. Gray, in *J. Kansas M. S.*, Dec., 1931.

SAFETY FIRST

The Rugby Club were trying out a new man at full-back. He proved a distressing failure.

After the fifth try had been notched against him, the skipper took him aside and said in a fierce undertone: "Why didn't you tackle that chap and stop him?"

"What!" said the full-back, "stop that frightful hulking brute? Why, good lor', it took me all my time to get out of his way."

Society Proceedings

COOK COUNTY

CHICAGO MEDICAL SOCIETY

Regular Meeting, Wednesday, April 17, 1935

PSYCHIATRY PROGRAM

"The Relation of Psychic and Bodily Functions."

"The Influence of Autonomic System on Body Processes"—A. J. Carlson.

"Relation of Psychic Factors to Bodily Function"—Ralph Hamill.

"Relation of Somatic Factors to Psychic Function"—George W. Hall.

Discussion from standpoint of:

Medicine—LeRoy H. Sloan.

Heart Disease—Don C. Sutton.

Gastro-intestinal Disease—Grant H. Laing.

Surgery—Hugh McKenna.

Pediatrics—C. A. Aldrich.

Gynecology—Frederick H. Falls.

Regular Meeting, Wednesday, April 24, 1935

"Rectal Cancer: Management and Prognosis" (Illustrated with Motion Picture Films)—Claude F. Dixon, Mayo Clinic, Rochester, Minn.

Discussion—Vernon David, John A. Wolfer, Carl B. Davis, Alfred A. Strauss.

"Hyperparathyroidism"—Fuller Albright, Massachusetts General Hospital, Boston, Mass.

Discussion—Lindon Seed, Hollis Potter, Andrew C. Ivy, Carl A. Dragstedt.

GREENE COUNTY

Meeting of the Greene County Medical Society held in Carrollton, Friday March 8, 1935. The Dentists of Green County were guests of our Society.

Following dinner at Hotel Lindsey the meeting was called to order in the dining room of the Hotel, at seven thirty P. M. by the President, Dr. A. D. Wilson.

Dr. N. D. Vedder of Carrollton was introduced and gave an instructive and entertaining paper on "The Relationship of The Physician and the Dentist." This paper brought out the fact that the work of the physician and the dentist meet at so many important points that there should be a clearer understanding of our need of one another and our need for co-operation, especially in the matter of diagnosis. The paper was very generally discussed.

There was a fine spirit prevailing and a wish was expressed that we might have a joint meeting of the dentists and physicians at least once each year. An invitation was given the dentists to meet with us in Greenfield next June.

After the paper was discussed the physicians proceeded with their business session. Minutes of the last meeting were read and approved. A few communications were read and disposed of. Dues for 1935 paid by every member present.

The Censors reported favorable on the application of Dr. Paul B. Bauer for membership and a vote was taken by ballot resulting in his unanimous election. His name was accordingly added to our membership list. No further business appearing the Society adjourned at ten P. M.

Ten members, twelve dentists and one visitor were present.

Dr. A. R. Jarman of White Hall and Dr. O. L. Edwards of Roodhouse were ill and could not attend.

Dr. W. H. Garrison of White Hall was chosen Delegate and Dr. A. K. Baldwin of Carrollton Alternate to the State Medical Society Meeting to be held in Rockford.

WM. H. GARRISON, M.D., Secretary.

IOWA AND ILLINOIS CENTRAL DISTRICT MEDICAL ASSOCIATION

The regular quarterly meeting of the Iowa and Illinois Central District Medical Association was held March 15, in the ball room of the Fort Armstrong Hotel, Rock Island, Illinois.

One hundred and twenty-five members and visiting physicians were present for dinner, at 6:30 p. m. and two hundred and twenty-five members, visiting physicians and nurses attended the scientific program at 8 p. m.

A paper was presented by Dr. D. B. Freeman, of Moline, on "Fibroblastic Sarcoma of the Stomach."

Dr. Emil Novak, of Baltimore, Md., was the guest

speaker, his subject was "Sex Differentiation and Intersexuality."

Dr. E. D. Plass, of Iowa City, opened the discussion of Dr. Novak's paper.

UNION COUNTY

The regular meeting of the Union County Medical Society was held April 11, 1935.

Addresses were given by Dr. Frank Boyd of Paducah, Kentucky, who spoke on "the diagnosis and treatment of acute and surgical conditions of the abdomen," and Mr. T. J. McGinty, Superintendent of the Southeastern Missouri Hospital, Cape Girardeau, Missouri, who spoke on "group hospitalization and its effect upon the profession."

HARRY PHILLIPS, M.D., Secretary.

Marriages

WILLIAM V. GOODER, Marengo, Ill., to Miss M. Lucile Bantham of La Fontaine, Ind., recently.

RALPH WYLDE KNEWITZ, East St. Louis, Ill., to Miss Jane Byrne of Roodhouse, February 28.

ALEXANDER L. STEARNS to Miss Elizabeth J. Day, both of Chicago, March 24.

Personals

Dr. Don C. Sutton, Chicago, addressed the Peoria City Medical Society, April 2, on "Heart Disease Complicated by Pregnancy."

Dr. Ralph A. Kinsella, St. Louis, discussed "Streptococcal Infection" before the St. Clair County Medical Society in East St. Louis, April 4.

The St. Clair County Medical Society was addressed in East St. Louis, March 7, by Dr. Williams McKim Marriott, St. Louis, on "Practical Points in Pediatrics."

Dr. Austin A. Hayden discussed "Hyperesthetic Rhinitis Ionization" before the Chicago Laryngological and Otological Society, April 1.

Dr. Max Thorek was decorated by the Republic of France with the Cross of the Legion of Honor at a banquet tendered him at the Grand Ballroom of the Medinah Club, April 24th. Four years ago he was made a Knight of the Crown of Italy.

Dr. Oscar B. Nugent addressed the Bi-State Medical Society on "Corneal Diseases," April 16. He also gave an illustrated lecture on "India" at the Spaulding School.

Dr. Julius H. Hess, Chicago, addressed the Champaign County Medical Society, Champaign, recently, on diagnosis of children's diseases.

Dr. Lowell T. Coggeshall, instructor in medicine, University of Chicago, has been appointed a member of the International Health Division of the Rockefeller Foundation, effective in July.

Speakers before the Chicago Urological Society, March 28, were Drs. Eugene A. Ockuly, Toledo, Ohio, among others, on "Osteomyelitis Following Lesions in the Genito-Urinary Tract."

At the quarterly meeting of the Iowa and Illinois Central District Medical Association, Rock Island, March 15, Dr. Emil Novak, Baltimore, discussed "Sex Differentiation and Intersexuality."

Drs. Herbert E. Landes and Patrick H. McNulty, among others, addressed the Chicago Urological Society, April 25, on "Malignant Tumors of the Testis" and "Carbuncle of the Kidney," respectively.

A symposium on obstetrics was conducted before the Adams County Medical Society, Quincy, April 8, by Drs. Ralph McReynolds, Henry J. Jurgens, Clarence A. Wells, Milton E. Bitter and Norbert A. Blickhan, Quincy.

Speakers before the LaSalle County Medical Society in Ottawa, March 20, were Drs. Harry A. Singer and George de Tarnowsky, Chicago, on "Ulcer and Cancer of the Stomach" and "Cancer of the Bowel and Its Surgical Management," respectively.

Dr. Clarence A. Neymann sailed from New York, March 16, for Belgium, where he was invited as Committee for Relief of Belgium exchange professor to lecture at the Universities of Ghent, Louvain, Liège and Brussels on "Electroprexia in the Treatment of Disease." He will address the Royal Medical Society of London this month on the same subject.

Speakers at a meeting of the Chicago Society of Internal Medicine, April 22, were Drs. Margarete M. H. Kunde, on "Blood Studies on Acetone, Glucose and Glutathione"; William A. Brams and Otto Saphir, "Adequate Myocardial Nutrition in Occlusion of Both Coronary Arteries" and Nathan S. Davis III, "The Incidence of Diseases of the Blood Vessels."

Dr. William L. Beecher talked on "Allergy," April 10, at Norwegian-American Hospital; April 17, before Young Mothers Club in West Chicago; and on "Hay Fever," April 12, at Central Y. M. C. A.

News Notes

—Reunion and Banquet of Class of 1905, Illinois Medical College, will be held in the Hotel Faust, Rockford, at 6:30 P. M., Tuesday, May 21.

—A slander suit for \$100,000 has been filed in the Superior Court in San Francisco by Dr. Painless Parker against Dr. Morris Fishbein, official of the American Medical Association, for statements alleged to have been made to the State Dental Association convention in Oakland.

The complaint alleges Fishbein delivered an address to the convention in which he called Parker a "charlatan and a quack" and declared that "all advertising by dentists is fraudulent and crooked."—*Associated Press*.

—The Institute of Medicine of Chicago has awarded the Joseph A. Capps Prize for 1934 to Dr. Lars F. Gulbrandsen, instructor in pathology, bacteriology and public health, University of Illinois College of Medicine, for a paper on "Invasion of the Body Tissues by Orally Ingested Bacteria and the Defensive Mechanism of the Gastro-Intestinal Tract." The prize of \$500, established by an anonymous donor in honor of Dr. Joseph A. Capps, is awarded annually for the most meritorious medical research by a graduate of a medical school in Chicago completed within two years after graduation.

—The department of chemistry of Johns Hopkins University, Baltimore, announces that its fifth research conference will be held at Gibson Island, June 24-July 12, under the general title of organic chemistry. One week will be given over to a discussion of vitamins by the following speakers: Elmer V. McCollum, Sc. D., Baltimore; Robert R. Williams, Roselle, N. J.; Charles G. King, Ph. D., Pittsburgh; Charles E. Bills, Ph. D., Evansville, Ind., and Henry C. Sherman, Sc. D., New York. Further information may be secured from Neil E. Gordon, Ph. D., Department of Chemistry, Johns Hopkins University.

—The Chicago Health Department made a study of the death certificates of infants born and dying in hospitals having more than 200 births a year, which shows that the death rate

of premature infants under 15 days of age was as low as 5 per thousand births in some institutions and as high as 50 per thousand births in others. The low death rate in some hospitals was attributed to three requirements:

1. The new-born infant is scrupulously protected against chilling from the moment of birth. Incubator facilities maintained at a proper temperature are constantly available for these infants, and weak infants are not oiled or bathed until this seems safe.

2. Attendants are trained in proper methods for resuscitation. Small catheters and oxygen are always available. Undue trauma is avoided.

3. Every effort is made to obtain breast milk until the mother's milk is available, and an effort is made to stimulate the mother's breast by manual expression.

Hospitals in which the death rates are high from prematurity are found to be failing in one or more of these essentials. To help meet this problem, the department of health has established a twenty-four hour incubator ambulance service for hospitals that do not have incubator facilities and for private physicians delivering mothers in the home.

—There are a number of areas in Illinois in which rabies is epidemic among animals. There also has been a decided increase in the number of dog bites and in some of these localities the dogs have been placed under quarantine by the Department of Agriculture.

Two deaths occurred recently following bites by rabid dogs, and we are most desirous of preventing future fatalities from this disease as far as possible. We suggest that all wounds caused by animal bites be immediately cauterized with fuming nitric acid. All persons bitten by dogs known to be rabid should immediately receive the fourteen dose treatment of rabies vaccine. Persons bitten on the face or hands, or in cases where there are multiple lacerations should receive twenty-one doses of rabies vaccine, two doses daily for the first seven days and then one dose daily thereafter until twenty-one doses have been given.

Rabies vaccine will be supplied free of charge by the Illinois Department of Public Health for indigent persons who need it, but those who are able are expected to pay for it.

Deaths

MILLARD WINFIELD BAYSINGER, Chicago; Missouri Medical College, St. Louis, 1883; University of the City of New York Medical Department, 1891; aged 77; died, February 24, of hypertension, chronic nephritis and uremia.

STACY BARCROFT DIMOND, Albany, Ill.; a Fellow, A. M. A.; State University of Iowa College of Medicine, Iowa City, 1889; also a druggist; aged 71; died, March 8, in the Jane Lamb Hospital, Clinton, Iowa, of pulmonary embolus, following an appendectomy.

BENJAMIN FRANKLIN ELFRINK, Chenoa, Ill.; Rush Medical College, Chicago, 1902; a Fellow, A. M. A.; past president of the Livingston County Medical Society; at one time mayor; formerly president of the school board; aged 60; died, March 12, of nephritis.

RICHARD L. FALLEY, Bible Grove, Ill.; St. Paul Medical College, 1886; aged 75; died, February 26, of heart disease.

AMOS CHARLES FEY, Galesburg, Ill.; Northwestern University Medical School, Chicago, 1925; a Fellow, A. M. A.; aged 34; on the staff of St. Mary's Hospital, where he died, March 3, of pneumonia.

CLYDE ALEXANDER FINLEY, Galesburg, Ill.; University and Bellevue Hospital Medical College, New York, 1903; aged 57; on the staff of St. Mary's Hospital, where he died, March 12, of chronic myocarditis and chronic nephritis.

JOHN FISHER, Chicago; College of Physicians and Surgeons of Chicago, 1887; member of the Illinois State Medical Society; aged 84; died, March 27, of cerebromalacia and arteriosclerosis.

ARTHUR MCKENDREE FROST, Mount Vernon, Ill.; Physio-Medical College of Indiana, Indianapolis, 1888; aged 74; died, February 1, in the Anna (Ill.) State Hospital, as the result of a cerebral hemorrhage.

AGNES VIRGINIA FULLER, Chicago; Hahnemann Medical College and Hospital, Chicago, 1902; aged 72; died suddenly, March 7, of cerebral hemorrhage and diabetes mellitus.

WILLIAM HENDRICKS, Chicago; Keokuk (Iowa) Medical College, 1891; aged 86; died, March 14, of chronic myocarditis and acute nephritis.

JACOB F. HULTGEN, Chicago; Northwestern University Medical School, Chicago, 1900; a Fellow, A. M. A.; formerly professor of clinical medicine, Loyola University School of Medicine; veteran of the Spanish-American War; on the staff of the Evangelical Hospital; aged 62; died, March 12, of carcinoma of the prostate.

ERNEST LACKNER, Chicago; Bennett College of Eclectic Medicine and Surgery, Chicago, 1872; past president of the Southside branch of the Chicago Medical Society; for many years on the staffs of the Michael Reese and Grant hospitals; aged 83; died, March 14, of carcinoma of the gallbladder.

ADOLPH W. LAKEMEYER, Chicago; Rush Medical College, Chicago, 1902; aged 62; for many years on the staff of the Norwegian-American Hospital, where he died, March 12, of a self inflicted bullet wound.

OTIS BUSH MALLOW, Hines, Ill.; Medical College of Ohio, Cincinnati, 1901; served during the World War; chief of the diagnostic center, Veterans Administration Facility; aged 59; died, March 10, of a self inflicted bullet wound.

ROBERT E. MCDADE, Chicago; Jenner Medical College, Chicago, 1917; member of the Illinois State Medical Society; aged 45; died, March 22, of hemorrhage following a cholecystectomy.

ALAN FLEMING McLAUGHLIN, Richmond, Ill.; University of Illinois College of Medicine, Chicago, 1930; member of the Illinois State Medical Society; aged 29; on the staff of the Sherman Hospital, Elgin, where he died, March 17, of pneumonia.

WILLIAM ALEXANDER McROBERT, Joliet, Ill.; Chicago Homeopathic Medical College, 1902; served during the World War; aged 67; died, January 20, of myocarditis and nephritis.

JAMES M. MERSHIMER, Chicago; Baltimore University School of Medicine, 1899; aged 73; died, April 8, of chronic cholecystitis, following an operation for relief of obstruction of the common duct.

NOBLE WILLIAM MILLER, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1906; served during the World War; aged 52; died, March 23, in the Veterans' Administration Facility, Hines, of hemorrhage, the result of a peptic ulcer.

EDWARD SIMON MURPHY, Dixon, Ill.; Rush Medical College, Chicago, 1897; a Fellow, A. M. A.; fellow of the American College of Surgeons; past president of the Illinois Tuberculosis Association; on the staff of Dixon Public Hospital; aged 64; died, March 22, of cerebral hemorrhage.

JAY FREDERICK PITTS, Chicago; National Medical University, Chicago, 1904; aged 56; died, February 12, in the Westlake Hospital, Melrose Park, Ill., of heart disease.

MARTIN E. RUDOLPH, Aurora, Ill.; Rush Medical College, Chicago, 1928; member of the Illinois State Medical Society; aged 32; died, March 29, of suffocation, the result of a fire.

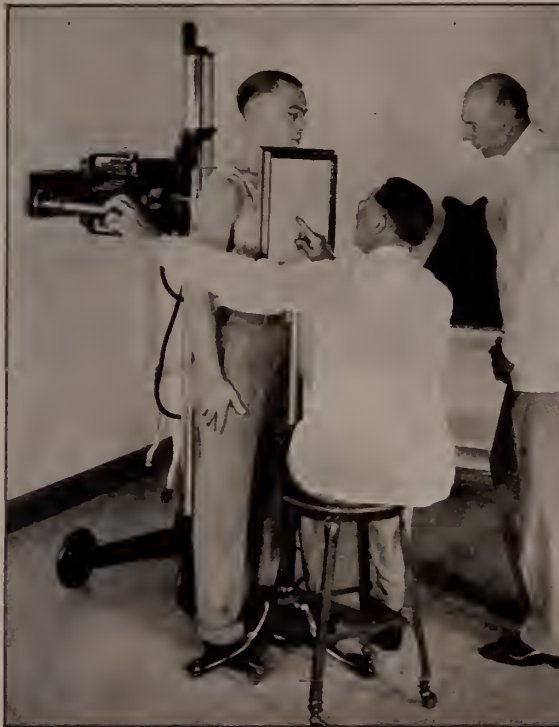
HUGO CHRISTIAN HERMAN SCHROEDER, Granite City, Ill.; Hahnemann Medical College and Hospital, Chicago, 1909; a Fellow, A. M. A.; past president of the Madison County Medical Society; on the staff of St. Elizabeth's Hospital; aged 49; died, February 25, in the De Paul Hospital, St. Louis, of heart disease.


WILBERT SHALLENBERGER, Chicago; Barnes Medical College, St. Louis, 1901; Illinois Medical College, Chicago, 1902; aged 60; died, March 17, of carcinomatosis.

JOHN MILTON SIMS, Macedonia, Ill.; St. Louis College of Physicians and Surgeons, 1895; member of the Illinois State Medical Society; aged 75, died, March 2, of heart disease.

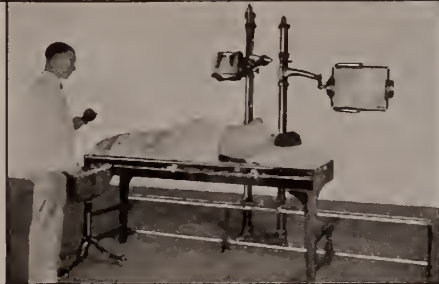
HARVEY S. SMITH, East St. Louis, Ill.; Marion-Sims College of Medicine, St. Louis, 1899; a Fellow, A. M. A.; past president of St. Clair County Medical Society; formerly member of the board of education; aged 60; died, February 13, of heart disease.

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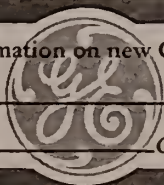
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CONTENTS:

Editorials (For Titles See Extended Table of Contents) 485

ORIGINAL ARTICLES

Fundamentals of Medical Religion. *Charles S. Skaggs, M. D., East St. Louis, Ill.*..... 500
Survey of the Medical Situation. *Charles B. Reed, M. D., Chicago*..... 506
Renal and Ureteral Calculi. *Louis D. Smith, M. D., Chicago*..... 512
Intestinal Obstruction. *Frederick Christopher, M. D., Evanston, Ill.*..... 515
Leukoplakia Oral. *Casper M. Epstein, M. D., Chicago* 517

Skin Test Diagnosis of Gonococcus Infection. *Budd C. Corbus, M. D., Chicago*..... 521
Blood and Spinal Fluid Reports. *F. W. Sokolowski, M. D., Alton, Ill.*..... 524
Vertex Presentation re Episiotomy and Outlet Forceps. *Charles Edwin Galloway, M. D., Evanston, Ill.* 526
Postoperative or Incisional Hernias of Anterior and Lateral Abdominal Walls. *Aime Paul Heineck, M. D., Chicago*..... 529
Basal Pulmonary Tuberculosis. *Oscar B. Ragins, M. D., and Ellis B. Freilich, M. D., Chicago*.. 537
Intravenous Injections of Mercurochrome in 400 Cases. *Arthur P. Martin, M. D., Chicago*.... 539
Systemic Blastomycosis. *Herbert J. Wing, M. D., Maywood, Ill.*..... 551

(Continued on Page 8)

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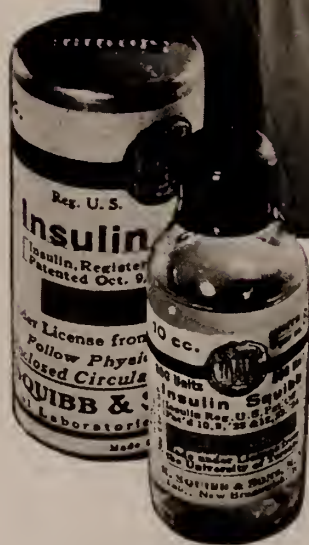
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Editorials

WHY BLAME IT ON THE DOCTOR?

A new verse to Elizabeth Barrett Browning's "The Cry of the Children" is being written these days by the pseudo sentimentalists who blame the medical profession for everything from the inflation of the dollar to the legend of the werewolf. To say nothing of the popular idea of regarding every obstetrician as a mewling modern Herod, murdering babes and mothers alike. The country is swept, deluged and ravaged by an "It-is-all-your-fault" builded by the excitable laity on the reports of the New York Academy of Medicine as to "preventability" in maternity mortality cases. Doctors from Maine to Mexico are being tied to the stake, and bonfires built against the profession.

While the report blames the "physicians of the country" in three-fifths of the deaths in maternity cases, or 61 percent and in 77.1 percent of the deaths from abortion it could never have been the intent of this report to throw the doctors of the country to the socialists among the laity, like a bunch of bones before a pack of dogs. There are, however, teeth enough in the report to impel every county society to sit down and take stock of the maternity mortality in their own purlieus and upon this to make report in their own defense and in defense of the profession.

Conditions in New York City where this report was made are not coincident with conditions the country over. New York City cannot be considered an index to United States national living. In the first place New York City is both a national port of entry and a national melting pot.

It is in a large degree an extension of Ellis Island, or a grown up Castle Garden if you wish. Native Manhattanese are a race of themselves apart. Rich, poor, or middle class they know their city and its capacities. Even the second generation New Yorkers rarely die in childbirth. It is just a thing that isn't done and the thing that isn't done is as foreign to

the native New Yorker as are three eyes on a normal head.

New York, even more than San Francisco or Chicago, is made up of a loosely bound group of colonists from other lands. In all three of these cities there are groups of which the individuals live and die without learning to speak the English language or to absorb the great American habit of bath-tubs and sewers. Among the foreign born, the mystery of birth has always been, and probably will continue to be a matter of fate and women. Only those who have struggled with the childbed superstitions of alien races realize how unfair it is to pin upon the country at large the faults of Manhattan mortality. New York City is a thing apart, a country within itself, and outspoken, personally, in its contempt for the broad areas of the rest of these United States, known to Manhattan as "the sticks" from Broadway to the furthest New Jersey suburb.

The report in itself is most interesting, as to conditions in Manhattan. They do not apply so positively to smaller cities with more normal standards of living, and no profession should be arraigned in the whole for the liabilities of the part in an instance like this.

Epitomized briefly among the high lights of this sincere and commendable report are the statements that

"On the basis of the facts gathered each case was reviewed by a jury of expert obstetricians and a verdict of 'preventable' or 'not preventable' was rendered in each instance. All cases classified as preventable were studied further to ascertain where, in the course of the patient's treatment, the error occurred which the committee considered to be primarily responsible for the fatal outcome. The error was charged subsequently to the responsible agent.

"Out of all the deaths, 2,041 in number, 1,343 were, in the judgment of the committee, preventable. In other words, that number of women, if they had had proper and adequate care, might have been brought safely through parturition.

"Lack of skill and faulty judgment, poor hospital administration and incompetent midwifery were found responsible for nearly 65 per cent. of the preventable deaths. More than a third of all avoidable deaths were due to the failure of the patient herself to take advantage of those facilities which are at hand for safeguarding her in the period of gestation and lying-in.

This element in the situation the committee considered to be one of education entirely.

"Of the total number of deaths, 262 were due to septic abortion; 95 to abortion; 120, ectopic gestation; 197, hemorrhage; 510, puerperal septicemia; 231, albuminuria and eclampsia; pernicious vomiting 14; phlegmasia alba dolens and embolus 89; accidents of labor 171; accidents of puerperium 8; and to extra-puerperal causes 344.

"Seventy-seven and one-tenth per cent. of the deaths from abortion were classified as preventable; 68.1 per cent. of those from therapeutic abortion; 74.2 from ectopic gestation; 76.1, hemorrhage; 75.1, puerperal septicemia; 72.7, albuminuria and eclampsia; 57.1, pernicious vomiting; 9.0, phlegmasia alba dolens and embolus; 87.1, accidents of labor; and 34.0, extra-puerperal causes.

"Figures for the total number of cases in which responsibility was ascribed to the physician show an almost equal distribution between faults of judgment and faults of technic, 49.1 per cent. and 50.9 per cent. respectively.

"Of the total 197 deaths attributed to hemorrhage, 49 were due to placenta praevia. Thirty-six of these 49 women gave a history of irregular vaginal bleeding at some time prior to death or labor.

"The total number of puerperal deaths (exclusive of those following abortion and extra-uterine pregnancy) in New York City during the three years under review was 1,564, a rate of 4.49 per 1,000 live births. The total number of deaths from sepsis was 510, 32.6 per cent. of the total deaths, a septic death rate of 1.46 per 1,000 live births.

"In 20 per cent. of the total live births, deliveries were operative. The death rate from septicemia in operative deliveries was 4 per 1,000 live births—five times that following spontaneous delivery, 0.8.

"Of the 1,564 deaths from all conditions exclusive of abortions and extra-uterine gestations, 231, or 14.8 per cent. were due to albuminuria and eclampsia. A total of 176, or 76 per cent. had convulsions. Only 95, 41.0 per cent. went to term before going into labor or developing symptoms of so serious a nature that death ensued without delivery or the attendant emptied the uterus artificially. About one-third of the babies were brought to term or near term and delivered alive. Only 27 per cent. of mothers who died

from this cause had received adequate prenatal care.

"Among all the deaths, 304 died following a Cesarean section and 6 others died while a Cesarean was being attempted—a total of 310 cases. In the hospitals for which detailed figures as to number and type of deliveries were available during the period studied, 3,963 Cesareans were performed, 2.2 per cent. of all deliveries. Two hundred and forty of the 310 deaths occurred in these institutions, a case fatality of 6.1 per cent. In 22 hospitals, the case mortality was over 10 per cent. and in 19 it was less than 4 per cent. In 148 cases, or 47.7 per cent. of all deaths following Cesarean, the principal cause of death was some form of infection. Sixty-five, 20 per cent., died as the direct result of the shock of the operation; 24 from albuminuria and eclampsia; 23 from hemorrhage; 9 from embolism; 1 from puerperal psychosis and 40 from various extra-*puerperal* causes.

"Among the 310 deaths associated with Cesareans, 257 living infants were delivered, 80.1 per cent. of the total babies delivered or on whom delivery was attempted by this method.

"The large percentage of disparity between the actual, and the recorded cause of death as shown on the death certificate is of interest. For the entire series of 2,041 preventable deaths, the total percentage of error was 17.8. In the diagnosis of abortion this rose to 34.7, the next highest percentage of error being 29.2 in the death certificates where the cause of death was septicemia. In 324, 15.9 per cent. of the total series, there was no mention of the true cause of death and in 40, 2.0 per cent. the condition given as the cause of death was found to be non-existent."

REDUCING INFANT MORTALITY

No matter how many cracks of how many kinds are made at the physicians as to "neglect of mothers and babies" along comes the grand statistical news that we are at least, neglect or no neglect, reducing the death rate of the newborn!

In 1915 at least 100 or ten per cent. out of every thousand babies born alive died before attainment of the first anniversary.

In 1932, the most recent statistics available, this percentage was reduced to 58 out of every

1,000, or something less than six per cent. In other words, in 17 years there has been a reduction of 42 per cent. in infant mortality. In certain states, Nebraska and Oregon, for two of them, the death rate is much lower than that, in this class.

It is interesting to note that there has been no betterment at all in the most hazardous day of any mortal existence—the first twenty-four hours of existence, and comparatively little betterment during the first thirty days. Almost a quarter of infant deaths occur during the first day of life; and half during the first month.

Two-thirds of deaths on the first day are due to premature birth; and three-fourths to premature birth linked with injury at birth.

Death from injury at birth has increased and mortality from prematurity has shown no reduction in a decade. Congenital malformations show virtually no improvement either during the last ten years.

Neonatal mortality has however been reduced. New Zealand boasts of a reduction in infant mortality to 31 per thousand.

Summary of the situation points to the importance of prenatal care but save for abnormal complications at birth does not demand of a necessity hospitalization at the critical hour.

It has not been demonstrated that hospitalization is necessary for a normal birth, provided home surroundings are of a standard normality. In some instances, where the mental worry attendant upon dependents, especially young children left at home to strange or to semi-competent care may be a mental worry to the mother, home confinement is not only equally excellent, but often superior. This is interesting in view of the fact that high priced hospitalization at maternity has become almost a fetish with American women. Good prenatal care tends to cut down the demand for maternity hospitalization.

THE 1935 ANNUAL MEETING

The 1935 Annual Meeting, held in Rockford on May 21, 22, 23, 1935, was an outstanding meeting in many respects. The attendance was probably the largest that has been registered at a down-state meeting. The total registration of women was approximately 360, and the total registration in excess of 1,600.

All sessions and exhibits were conducted under one roof, and once more demonstrated the fact

that there are few cities in Illinois which can furnish adequate facilities for the annual meetings of the future.

The Secretaries' Conference on Tuesday morning was well attended, and the program was of unusual interest. The importance of these conferences is becoming generally known, and they are attended by many members of the society who are not actually officers, but show an interest in the subjects presented.

The Pediatricians had their special meeting on Tuesday morning, which was well attended, showing the importance of special half day meetings aside from the regular section programs. The Medical Women also had a Tuesday morning program of considerable interest. The Obstetricians petitioned the Council for their special meeting next year, to be held on Tuesday morning, which permission was granted, and in 1936 their first annual meeting will be conducted.

The section programs were all well attended, the programs were well balanced and of interest to the many physicians in attendance. The section on Public Health and Hygiene, which formerly was poorly attended, had difficulties in conducting their meeting in the room assigned to them.

The Scientific exhibits were of unusual interest this year, and many types of scientific exhibits were arranged at the request of the special committee on scientific exhibits. Suitable awards were given to the outstanding exhibit in each of the three classes, teaching institutions, non-teaching institutions, and individual exhibitors, which stimulated a friendly spirit of rivalry among the exhibitors.

The commercial exhibitors were more numerous than in the past five years, and several were unable to exhibit through lack of suitable space. Almost all lines of appliances used by physicians in all branches of Medicine were displayed, and all booths were well located.

The fracture demonstrations once more were conducted in an interesting manner, showing the value of same as a feature of the annual meeting. The motion picture theatre was also an interesting feature, which will probably be enlarged next year.

The President's Dinner, held on Wednesday evening, taxed the facilities available in the large ball room where it was held, and hundreds of

members gathered together to honor the retiring president and the past presidents.

The House of Delegates held the customary meetings on Tuesday afternoon and on Thursday morning. At the first meeting the annual reports of officers, councilors, and committees were referred to reference committees, which went over the reports carefully, and presented their reports at the Thursday session. From the popularity of this procedure, it is quite evident that this procedure will be followed in the future.

The actions of the House of Delegates at the 1934 Annual Meeting of the American Medical Association, in approving the "ten point program," was approved by the Illinois House of Delegates at the Thursday morning session. Likewise, the report of the A. M. A. House at their special meeting in February, 1935, was approved. A number of important resolutions were introduced and acted upon and which will appear in the July ILLINOIS MEDICAL JOURNAL in the transactions of the House of Delegates.

The following were elected by the House of Delegates on Thursday morning:

President-elect—Rolland L. Green, Peoria.
1st Vice-President—T. H. Culhane, Rockford.
2nd Vice-President—F. H. Muller, Chicago.
Secretary—Harold M. Camp, Monmouth.
Treasurer—A. J. Markley, Belvidere.
Councilor of 1st District—E. H. Weld, Rockford.
Councilor of 2nd District—E. C. Cook, Mendota.
Councilor of 3rd District—R. K. Packard, Chicago.
Councilor of 11th District—E. S. Hamilton, Kankakee.

Delegates to American Medical Association

C. S. Skaggs, East St. Louis.
C. E. Wilkinson, Danville.
W. E. Kittler, Rochelle.
C. B. Reed, Chicago.

Alternate Delegates to American Medical Association

Frank L. Brown, Chicago.
E. P. Coleman, Canton.
E. H. Weld, Rockford.
C. W. Carter, Clinton.
L. O. Frech, Decatur (for one year, to succeed W. E. Kittler).

Election of Standing Committees.

Committee on Public Relations:

W. S. Bougher, Chairman, Chicago.
C. J. Drueck, Chicago.
George Michell, Peoria.

Legislative Committee:

John R. Neal, Chairman, Springfield.
Mather Pfeifferberger, Alton.
Thomas P. Foley, Chicago.

Medico-Legal Committee (for three years):

J. R. Ballinger, Chicago.

C. U. Collins, Peoria.

Committee on Medical Education and Hospitals:

J. P. Simonds, Chairman, Chicago.

H. O. Munson, Rushville.

W. R. Marshall, Clinton.

Committee on Relations to Public Health Administration:

F. F. Maple, Chicago.

Thos. Meany, Chicago.

Frank Heda, Chicago.

L. O. Frech, Decatur.

Bernard Klein, Joliet.

It was voted unanimously to hold the 1936 Annual Meeting in Springfield.

A complete report of the transactions of the House of Delegates will appear in the July JOURNAL.

REGIMENTING AND SOCIALIZING MEDICINE

Although regimentation and socialization of medicine by legislative action seems well on its way to establishment in the scheme of American economics this most unAmerican procedure can be stopped completely if the ethical medical men of the country really unite in the cause of public safety and professional preservation.

A species of hookworm disease seems to have infested the reasoning faculties of many doctors. A surprisingly large percentage of physicians are absolutely ignorant, or cognizant in only a very vague way of the imminence of those statutes which will establish lay, or governmental control over the practice of medicine. Some people never learn. The costly experiment of the prohibition amendment,—though few medical men if any would oppose a citizenry voluntarily living in a state of abstinence, failed to teach its obvious lesson. What was put over as a "war emergency" law continued after the war was over until peace itself was almost completely wrecked. That has been the experience of Great Britain with the "temporary health insurance plan" passed in 1911 by the British Parliament. That plan is now the permanent British health insurance law, a frightful burden, destruction proof and incapable of improvement. Whether group organization, a practice controlled by the doctors, will be the eventual refuge of the new really persecuted profession of medicine, it is difficult to say. Some few doctors have learned a lot from the system of "relief practice." Others continue deaf and dumb. But one thing is as

certain as death and taxes and that is the profession has already dallied far too long by the wayside. The time for professional co-operation is here and now, or lost forever!

THE MILBANK FUND HAS SEPA- RATED KINGSBURY FROM THE PAYROLL

The Milbank Foundation would seem to be in process of eruption. In the midst of the clouds of ashes, dust, flame and white hot lava discernible to the naked eye stand out these high-lights:

1. Word that the Milbank Foundation has ceased to crusade for public health insurance.

2. News that John A. Kingsbury has been released from his duties in connection with the famous philanthropy.

3. Further news that I. S. Falk, the self-arrogated chief justice of administrative medicine, has also been loosed from his job, or at least will have to go completely "incommunicado."

4. Edgar Sydenstricker, another brave "Milbanker," is to be assigned to Dr. Roscoe G. Leland's department of the American Medical Association.

5. It may be that the Milbank Foundation at heart wants to do right by the science of medicine, even if up until today it had been led into false ways of effort.

As to this situation, note the quote from the *Medical Reporter*, a pamphlet sponsored by the publicity department of the Oregon State Medical Society, and which under date of May, 1935, presents a reprint from the *Detroit Medical News* with timely annotation. Both articles are too obvious for any comment. They hit the nail on the head most accurately.

THEY GO AFTER THEM IN DETROIT

"Detroit physicians would like to ask the Milbank Fund, which derives its income from the Milk Trust, why the price of milk per quart in Detroit is the highest of any American city. The same national trust operating here and elsewhere has 35 per cent. of Detroit's milk business. The other milk combine also has 35 per cent.; each of the 34 independent companies has less than 1 per cent. of Detroit's milk business.

"Does Detroit pay more for milk than for medical services?

"We ask the Milbank Fund, maintained by

profits from babies' milk, why the federal government is now investigating the milk business in Detroit? We ask if it has anything to do with unfair trade practices tending to kill off the independent distributor—the little man? We ask the Milbank Fund, aided by profits from babies' milk, what the three United States government investigators into the milk situation were doing and discussing in Detroit at 3:00 p. m., on Wednesday, March 20?

"Does the Milbank Fund have as one of its projects a study of the milk racket?"

"We suggest that the Milbank Fund, before intruding into the profession of medicine, investigate the business practices of the Milk Trust in which it has a pecuniary share. We suggest that it publicize the findings of the United States Government agents as regards the milk situation in Detroit and Michigan.

"We believe the Milbank Fund could better use its baby-food money to work out plans for increasing the distribution of milk. They might arrange that families in Detroit (and the United States) get milk at a price they can afford to pay. If their studies show this cannot be done by industry, then let the United States Government take over the milk business.

"We ask the Milbank Fund what bank in New York City is the financial agent of the milk company? We ask if there is any interlocking directorate or financial relationship, direct or indirect, between the great Wall Street insurance companies and the Milk Trust?"

"We further inquire of the Milbank Fund, supported by profits from babies' milk, if the attempt to socialize medicine is a sop to economic imbalance?"

"We ask the Milbank Fund why the Public Relations Council of the Milk Trust is so desirous of coming to Detroit and talking to the Wayne County physicians?—Reprinted from Detroit Medical News.

"EDITOR'S NOTE: Most interestingly, after the doctors of Detroit had launched this counter-attack, the Milbank Foundation withdrew from the field of Compulsory Health-Insurance. Then Mr. John Kingsbury and I. S. Falk resigned (by request?) from the Foundation. In the future the Milbank Fund will be used for research in health as it was bequeathed by its founder.

"Does it pay to fight? Or do you favor laissez-faire?"

Note also the comment on the situation in the *Weekly Roster and Medical Digest* printed by the Philadelphia County Medical Society, which under date of April 27 remarked in connection

with the departures of Messrs. Kingsbury and Falk and the transfer of Sydenstricker:

"These developments can scarcely pass unnoticed.

"They serve to emphasize a dependable trait of American character to revise its understanding of a situation once all facts are earnestly and honestly presented for consideration. The Milbank Foundation has many outstanding accomplishments to its credit, and this evidence of its reluctance to follow misguided leadership can unquestionably be included in this list."

WE ARE RAPIDLY APPROACHING THE TIME WHEN MEDICINE WILL BE NO LONGER PRACTICED BY PHYSICIANS, BUT BY POLITICIANS?

We are rapidly getting around to the time when medicine will be *no longer practiced by physicians*, but by politicians and tax-gatherers. Already the plan is all set.

Unfortunately the trend of the times makes the economic factor in medical practice both the destructive element in scientific progress and the inevitable force that so powerfully aids in the encroachment of socialism upon democracy's rights. The day when medicine is practiced no longer by physicians but is controlled by a moneyed and politically managed laity will be the day when the doom of individual rights and community independence is sounded by the installation of the worst bureaucracy the world has ever known. Even today under the advance guards of this menace the law ridden United States is pitifully knuckling.

Scientific practice of medicine, and through this route the very fundamentals of civilization, stand today at the mercy of insidious and violent enemies. These foes are all the more shameful since they are developments of that very superstructure of civilization evolved so largely from the progress of scientific medical practice.

In view of the miracles in prevention of disease, palliation of pain and almost magical cures of hundreds of thousands of traditional and recurrent physical ailments, as well as of the actual necromancy of modern surgery, it is difficult to understand why the modern scientific physician and surgeon finds himself estimated by the community he so sacrificially serves, at such a much less par value to the nation, the state and the

community, than was the medicine man of the aborigines.

In all primitive groups the medicine man was reckoned little less than a god. Frequently he played proxy for one or many gods of the seasons, the crops or other tremendous manifestations of nature that his people feared and dreaded. Among even higher civilizations, including the fine though ultimately decadent classicism of the golden ages of the Greeks and the Romans, frequently the priests, the soothsayers, the real leaders of the minds of the people were its men of medicine.

Yet today, under a sun that shines upon the most ethical, cleanest, most highly expanded state of culture the world has ever known, the scientific doctor finds himself practically an outcast from the economic scheme of things; his rights abrogated, his privileges arrogated and his trained and skilled craft assumed by lay people through vicious and ignorant laws, and an anarchistic attempt to socialistically undermine the Constitution of the United States, by using the medical profession of the United States as a catspaw. The inevitable result of such a trend means the disparagement, discouragement, and final decay and destruction of that fine group of men, bound to a sacred profession whose march down the ages, only too often unhonored and unsung, has gradually flowered into such development of material wealth, natural resources and interchange of trade and friendship between nations, as had never been dreamed of. With the conquest of the air, man practically mastered for his own use every element of which he has cognizance. With this achieved, like Alexander, who had conquered all lands but himself, the craftsmen of state have set about killing the goose that lays the golden eggs. The actions of the incipient health insurance advocates are sinister to the point of degradation. As it stands today, scientific medicine's sincerest apostles are being fought to the wall on the principle that everything ought to be endowed except the people who do the work, and that medicine should be practiced by everyone except the trained man. Too many states are swallowing whole unemployment insurance. Clinics, hospitals, universities, laboratories are all endowed and equipped to do the work of the physician with as much elaboration as if the whole science of health and healing were a mammoth

mechanical man who needed not even a human touch to press a button to start him functioning. As every large owner and employer of machinery has always found out to his sorrow, there is no machine so perfect or so ingenious that somewhere along the line it does not need the human touch. That human touch in the science of health and wealth is the same old self-sacrificing man of medicine, not fundamentally different now though he pay his visits by airplane or motor than in the days of saddlebags and a piebald nag.

To a lesser degree the individual business man is face to face with the same proposition, or rather to one that is tantamount, in the chain store idea; even at that the chain store idea is less vicious in its future prospects for national stability than the fate of medicine surrounded as it is today by handicapping legislation, lay dictation and encroachment of citizenship and professional rights and direct disregard of scientific attainment such as is the yoke borne by scientific medicine.

And the latest idea is to starve out the doctor by the welfare clientele and the state insurance idea for "them's as won't or can't work." A few years ago that learned man and great humanitarian, President Eliot of Harvard University, said aptly "A new blight is affecting education and industries in the United States. Its name is standardization. It is obvious that standardization has become a dangerous adversary of progress in both education and industry. Fixed standards in labor, in study, in modes of family life, or of community life, are downright enemies of progress for the body, mind and soul of man." Yet Dr. Eliot never had to reckon with "codes upon codes." If he had! ! !

Yet standardization, the handmaid of bureaucracy, has the United States by the throat. Truly has it been said that "America is forced by law to do, and prohibited by law from doing more things than had been prohibited or required in autocratic Europe before the war. And now comes this gift business from Washington. New and interfering laws multiply in the United States as rapidly as the staggering tax levies that are required to pay for the administration of meddling statutes and unending donations that nobody wants and that nobody needs except members of the bureaucracy rapidly destroying personal freedom and making the United States

the worst of autocracies with the situation paralleling pre-revolution France. Now though the "least government is the best government," over-centralization at Washington usurps individual rights. Consequently there are in America today too many laws and too little respect for them and too much bossism.

A further angle of this plague of legislation is that the cost of upkeep of paternalistic regime and its theft of personal privileges beggars United States citizens, as *one out of every five* is on the public payroll, and so income tax exempt with public servants and pensioners increasing at a rate unknown to previous history. Big business has commenced to protest against these "codes" but for the most part the medical profession bears its yoke supinely.

Bureaucracy is always a curse and centralization a lethal menace under any conditions, but where the practice of medicine is concerned it is fatal, both to the profession and to civilization that prospers with good medical service and falls without it.

This overcentralization at Washington with its usurping of state rights, community rights, individual rights, affects the medical profession most seriously at those loopholes discovered where the profession comes into contact with the world at large in joint administration with lay men, in legislation, and in economic life of the individual doctor and contact with the public.

Dangerous indeed is the trend to specialization, over centralization, and group organization that tends to permit or to admit lay dictation or control of the practice of medicine and the pauperizing of the profession by making the state bear the care of illness of its nonpauper citizens through tax levies; and further from the unfair competition to the legitimate doctor made by pay clinics, or by universities or corporations entering into the practice of medicine, with no superior skill to offer but backed up by the advertising that ethics forbids the respected physician to assume.

Pay clinics are springing up like mushrooms and everywhere are found examples of corporations and universities entering into the practice of medicine for profit.

When we have a few more pounds of pressure such as the state medicine bunk with its health insurance, unemployment insurance and all the rest of the affiliated junk tacked on our shoul-

ders, even Soviet Russia with its almost denatured medical profession, will commence to look like the garden of Eden itself!

Wake up, brothers, wake up! Or you will wish you never had gone to sleep!

SPENDING THE TAXPAYERS MONEY

"The United States News is authority for this statement:

1. Total expenditures of the U. S. for 124 years (including four wars) from 1789 to July, 1913, were \$24,500,000,000.

2. Total expenditures under the New Deal for three years from July, 1933, to July, 1936, will be \$24,200,000,000.

The United States News, and others, may be interested to hear that a daily newspaper recently had to send a hurry call to the manufacturers of a well-known typesetting machine for more zeros.

Its supply of these characters on its own machines had run short because of the demand for them in printing the statistics of appropriations at Washington."

WHEN THE SLIP GETS BY

The typographical error is a slippery thing and sly,
You can hunt till you are dizzy, but it somehow will
get by.

Till the forms are off the presses it is strange how still
it keeps;

It shrinks down into a corner and it never stirs or
peeps,

That typographical error, too small for human eyes,
Till the ink is on the paper, when it grows to moun-
tain size.

The boss he stares with horror, then he grabs his hair
and groans;

The copy reader drops his head upon his hands and
moans—

The remainder of the issue may be clean as clean can be,
But that typographical error is the only thing you see.

—Knoxville (Ia.) Express.

IF YOU ARE UNDERWEIGHT:

1. Get weighed and find out how many pounds you should gain.

2. Consider whether you have any symptoms which would indicate disease. If so, consult a physician.

3. Change your personal habits, if necessary, so as to:

- a. Get 8 or 9 hours sleep every night.
- b. Relax as much as possible.
- c. Spend an hour or more each day in the fresh air.
- d. Exercise regularly.
- e. Eat plenty of wholesome food.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the

L. E. Day, M. D.
I. H. Neece, M. D.
E. H. Ochsner, M. D.
E. H. Weld, M. D.

Illinois State Medical Society
E. S. Hamilton, M. D., Chairman
Kankakee, Illinois

C. S. Skaggs, M. D.
R. K. Packard, M. D.
H. M. Camp, M. D.
C. E. Wilkinson, M. D.

Address all letters and communications to the Chairman.

The attendance at the Tuesday morning meeting of the Secretaries' Conference, when the various subjects of Medical Economics were discussed, was very encouraging to those of us who have been greatly interested the past two years. There have been times when we wondered whether we were putting over the message to the doctors of Illinois and, if we were, just how interested they had become in this, the greatest problem now before organized medicine and the individual practitioner.

Naturally, we were enthusiastic about the subject as soon as it was considered to give over the entire morning to a general discussion of the subject. When the program was arranged, we felt sure that there would be most interesting and instructive talks presented. Apparently, many doctors all over the State felt the same way, as their attendance demonstrated. We were particularly fortunate in having such a range of speakers, all of whom approached the subject of Medical Economics from a different angle. Naturally, every man's viewpoint is influenced by his occupation, and this was clearly demonstrated in this program. However, they agreed on major points, even though they differed on minor points. All agreed that the medical profession was the most able to understand the needs of the public and also were best able to handle the entire problem, without any outside help, provided they agreed as to principles. This is in line with what has been stressed in this column for the past two years, and it is gratifying to see that others approve.

How differently we think on subjects, with the same information before us, was shown in the opinion of Dr. West and Dr. Packard in regard to Group Hospitalization, about which so much has been written and spoken in the past year. Both agree, however, that they may be mistaken. This is encouraging for anyone with an open mind is open to conviction. And, after all, we must have a mind which will listen to

all sides of the problem and be willing to completely alter decision on the presentation of new data.

It was a little surprising to talk to several men who apparently had made little attempt to read the information contained in the *ILLINOIS MEDICAL JOURNAL* as well as the *Journal A. M. A.* and their brochures published in the past year. These men are just becoming aware of the gravity of the subject and are asking for just the information that has received so much attention the past year.

We suggest that any man who is interested in the subject of Medical Economics dig out his old journals and read up on what has been stressed the past year. Several men approached the Committee at the Rockford meeting and asked if there was work that they could do. This was particularly encouraging, for it is the first time that we have found men who are willing to give of their time and energy except when so requested. We will try to find work for the men in the coming year.

We want to repeat that this column is desirous of being of value to the members of the Illinois Medical Society in every possible way. If you have any questions or suggestions, feel free to write to the Chairman of the Committee and give your views. If he cannot answer the questions, he will refer them to somebody who can. Articles on the subject of Medical Economics will be published after careful consideration by the Committee, provided they think it advisable.

The Chairman of the Committee wishes to thank the retiring President, Dr. Skaggs, for the great cooperation he has received in the past year. Dr. Skaggs attended and addressed more meetings than any President in recent years and usually gave considerable time to discussion of economic problems.

Two interesting developments are noted this month. The *Chicago Tribune* of May 20 published the following item:

"Trustees of the Julius Rosenwald fund voted yesterday an appropriation of \$284,000 to be expended in the fiscal year beginning July 1 for welfare work and rural education among colored persons and *for furthering Socialized Medicine*. Edwin R. Embree, president of the fund, said that the Rosenwald effort to place competent medical service and hospitalization within the reach of persons of moderate means paralleled the program of the medical profession. He quoted Mr. Michael Davis of the fund's medical division as reporting that 344 plans to cut the cost of medical care, or to make it easier for the average family to pay for the same, had come to his office in the past year. Certain of these projects, he said, had been endorsed in principle by the American College of Surgeons."

Surely no comment is necessary on the above. The admission on the part of the officers of the fund that they are furthering socialized medicine makes all agreed that they have had ulterior motives from the first, and their frank admission is at least refreshing.

The Physicians and Surgeons Economic Association of the United States of America has been founded in Milwaukee to study the subject of Medical Economics. Some of the purposes of this new organization are:

1. To close all free clinics except those required for teaching medical students.
2. To protect the physician-patient relationship.
3. To prevent the corporate practice of medicine.
4. To urge taxation for the payment of medical services to indigents.
5. To watch and guide all legislation affecting the practice of medicine.
6. To establish minimum fees.
7. To control the volume and distribution of physicians.
8. To organize a national credit-rating bureau.
9. To create a mutual sickness fund and a pension system for physicians.

Membership will be limited to active practicing physicians. Local, state and national units will be formed. This attempt will be watched by all interested in the subject of Medical Economics.

E. S. HAMILTON,
Chairman of Committee
on Medical Economics.

Correspondence

DR. WILBUR H. GILMORE

The death of Dr. W. H. Gilmore has robbed Illinois and Chicago of a member of the medical profession whose absence will be sorely missed by many who had the good fortune to know him. Skilful and conscientious in his chosen specialty of Roentgenology, he was a specialist only in the technical part of his work, for its scientific aspect was well founded on a solid basis of general medical information. Though a member of our Medical Examining Board with opportunities for publicity and self-exploitation, he shunned both as evils not to be countenanced by ethical physicians.

The customary eulogies written or spoken at the departure of men of worth are seldom based on intimate truth. The tendency to glorify those gone to their reward by superlatives may be beautiful but not credited for historical accuracy. But it is no exaggeration to say that in the years the writer has more or less intimately known Dr. Gilmore, he has seen traits in him which have enhanced an almost spontaneous friendship by a profound respect for his spiritual qualities. He made no display of false modesty, for when he did give a diagnostic opinion he had and gave good reason for it, but he never gloated when surgical intervention proved the correctness of his contested contentions. He did not write much, doubtless because of his innate antipathy to display and publicity. But he had an unusually strong sense of justice and fair play, the application of which has saved many a brother practitioner from unjust criticism or unmerited trouble. Equally strong was his condemnation of individuals whose activities undermined the prestige of scientific medicine. His natural chivalry and his truly American concept of humanitarianism showed him to be a living embodiment of ideals he preferred to carry out rather than to talk about.

When he was taken ill he knew he had only about two years to remain on earth. He took his fate philosophically, content that his son John had a chance to continue the work where he would leave off.

Would that we had many more such men in our profession of whom we could say when they

have left us forever, that each was a "chevalier sans peur aet sans reproche."

GUSTAVUS M. BLECH.

INFORMATION ON HEALTH INSURANCE AND MEDICAL ECONOMICS SHOULD BE GIVEN TO SENIOR MEDICAL STUDENTS

To the Editor: It is reported that in some universities students soon to graduate in medicine have not been addressed on sickness insurance or given the medical practitioners' viewpoint of this problem. The House of Delegates of the American Medical Association, in 1933, adopted a Resolution pointing out the advisability of offering some training in the economics of medical practice in medical colleges. In some instances such courses have been given without discussion of sickness insurance and the experience in European countries, or plans proposed in this country. Students not having contacts among physicians in general practice have frequently received their only impression of sickness insurance from younger members of the teaching staff, like themselves without outside experience, or nonmedical sociologists and social workers. Lack of medical knowledge, and therefore lack of ability to properly evaluate the factors that enter into the care of the sick, has been evident in statements made by some of the most active proponents of sickness insurance plans.

It has been frequently stated that senior students and recent graduates are inclined to look toward sickness insurance as a desirable means of getting a start in practice. Although complete age records of physicians employed under sickness insurance in foreign countries are not immediately available, it is not evident that sickness insurance, if instituted, would offer any advantage to the young man over his older medical competitor. The established physician, though possibly not so well trained in newer medical methods, would have the advantage of experience, patient contact and political alliance, if such legislation would reduce the major portion of the profession to the same low level of earnings. As to the future possibilities of advancement open to the practitioner in medicine, obviously the young man would have more to lose than the older member of the profession, should destructive methods prevail.

Contact with student groups and recent grad-

uates, and a frank presentation of sickness insurance plans and their effects, based upon a fair appraisal of foreign experience, has in each instance developed an understanding body, who are awake to this threat against their future, among these younger medical men. Given a friendly interest and guidance, these groups will become the most effective force against the establishment of objectionable methods of practice. In some instances, faculty members have frankly admitted that, having had no experience in outside practice, they do not feel themselves competent to present the subject. It is therefore suggested that Officers of each State Medical Society contact the medical colleges of their state, and, through their faculties and student organizations, arrange for the presentation of the sickness insurance problem by someone sufficiently well informed on that subject. Each student should be given helpful literature. The American Medical Association will, on request, furnish needed supplies. Medical organizations have a definite responsibility toward these men who are about to enter the active field of medical practice.

In addressing graduating students, the advantages of membership as soon as possible in County and State Societies and the American Medical Association should be pointed out.

Only a few weeks remain before graduation of classes in most medical schools. Immediate action is necessary.

Committee on Legislative Activities of the American Medical Association.

E. H. Cary, M. D., Chairman.

C. B. Wright, M. D.

F S Crockett, M. D.

R. R. Sensenich, M. D.

By R. L. Sensenich.

THE ATTEMPT TO DISCREDIT THE PAMPHLET "WILL AMERICA COPY GERMANY'S MISTAKES?"

The Pennsylvania Self-Insurers Association of Philadelphia, through its secretary, Walter Linn, has issued a reply to what it terms the "attempt of the Committee on Economic Security" to discredit Gustav Hartz and his pamphlet "Will America Copy Germany's Mistakes? Results of

a Half Century's Practice of Social Insurance in the Land of its Inception."

Here is Mr. Linn's comment:

CORRECTION

Based upon information which we had every reason to believe authentic, we stated in the second and third editions of the Hartz pamphlet, "Will America Copy Germany's Mistakes?" that unemployment insurance had been discontinued by the German Government on January 15—about one month after Mr. Hartz wrote the pamphlet for us.

It now seems that this was not strictly in accordance with the facts; that unemployment insurance still nominally exists in Germany and that the premiums collected under it are being turned over to the relief fund, which, of course, has nothing to do with unemployment insurance, except that it takes up the burden where unemployment insurance inevitably fails in every crisis.

The exact nature of the official order reported to have been issued on or about January 15, we have been unable to learn, such information being difficult to get when you are actually in Germany, and almost impossible to unearth when you are out of it. As Mr. Hartz well says on page 20 of his pamphlet:

"Social insurance laws consist of 2700 paragraphs; 200 of these have lately been abolished. A great number of amendments, executive regulations and alterations supplement this confusion of paragraphs. Even experts can only make them out in parts.

"By extending and employing these paragraphs another tangle of commentaries has grown up around them. To an ordinary mortal this work is a book with seven seals."

However, the "Committee on Economic Security," through its governmental agencies, received information from Germany that unemployment insurance has not been wiped off its statute books, even though it has been wiped out as a factor in the economic life of the country.

The "Committee on Economic Security," he it said, is merely a camouflage for a cross-section of President Roosevelt's Cabinet. The members listed on the letterheads of the organization are:

Frances Perkins, Secretary of Labor, Chairman.
Henry Morgenthau, Jr., Secretary of the Treasury.
Homer S. Cummings, Attorney General.
Henry A. Wallace, Secretary of Agriculture.

Harry L. Hopkins, Federal Emergency Relief Administrator.

Edwin E. Witte, an economist connected with the University of Wisconsin and one of our most raucous radicals, is Executive Director and guiding genius of the Committee.

When he learned that this one parenthetical, supplemental note on a fly leaf of the later editions of the pamphlet was technically incorrect, he immediately broadcast the fact over the National Broadcasting System in an attempt to discredit the pamphlet and Mr. Hartz.

An affiliated "Red" publication, entitled "Social Security" and published by the American Association for Social Security, Inc., New York, bursts forth this month with a scurrilous broadside against the doctors, who have taken a great interest in the Hartz pamphlet, because of what it has to say about the evils of socialized medicine; against this Association, for daring to introduce it to America, and against Mr. Hartz himself, whom they describe as a "Nazi Propagandist."

The truth is that Hartz's publishing activities were greatly curtailed by Hitler's rise to power, and that there is no relationship, direct or indirect between them. It is probable that Hartz has never made any open attack on the Chancellor, but neither has anybody else in Germany who continues to carry his head on his own shoulders.

Instead of Mr. Hartz being a Nazi, it is the social security propagandists who are the real Nazis, or Communists, or whatever other "collectivism" name you choose to apply to them, for the system they seek to impose upon us can be kept in control only by that type of government, or by an absolute monarchy. You cannot give people something for nothing and then take it away from them by their own votes. Nor can you keep them satisfied with what you have already given them. They will always demand more, as is evidenced by our workmen's compensation acts.

A tyrant, whether he be a Hitler, or a Stalin, or a Mussolini, may give what he pleases and take what he pleases. A democracy should take little and give little beyond the right to life, liberty and the pursuit of happiness.

The Wittes, the Perkinses, the Epsteins, the Simkovitch's and all the other vitches are fully aware, and many of them openly admit, that what they are really striving to do, behind a

smoke screen of humanitarianism, is to kill our democracy and substitute a collective form of government, such as they inveigh against in their ridiculous criticism of the Hart pamphlet.

This is the real issue, and we trust that America will not permit itself to be blinded to it by as oily and plausible a band of hearties as ever scuttled a ship.

WALTER LINN, *Secretary.*

MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Two joint sessions of the Medical Sciences Section of the American Association for the Advancement of Science and the Minnesota State Medical Association will be a feature of the annual meetings of both associations when they meet in June in Minneapolis, Minnesota. The Minnesota association's eighty-second annual meeting will take place in the Minneapolis Auditorium, June 24, 25 and 26. The American Association for the Advancement of Science will meet during the same week at the University of Minnesota.

The first joint session will be Monday night, June 24, when the principal speaker will be Dr. William P. Murphy of Harvard Medical School, 1934 Nobel Prize winner in medicine. His subject will be "Diseases of the Blood."

The following morning the second joint session will be held featured by a symposium on blood diseases. Taking part in the symposium will be Dr. Murphy, Dr. T. L. Squier of Milwaukee and Dr. W. A. Bloedorn of the School of Medicine, The George Washington University, Washington, D. C. Dr. Murphy will discuss the treatment of pernicious anemia with liver, Dr. Squier will talk on drug allergy in primary granulocytopenia, and Dr. Bloedorn will discuss the role of iron in the treatment of anemia. Both Dr. Bloedorn and Dr. Squier will talk under the auspices of the American Association for the Advancement of Science.

Completing the morning's program will be a talk on "The Prevention of Whooping Cough with Bacillus Pertussis Vaccine," by Dr. L. W. Sauer, Associate in Pediatrics, Northwestern University Medical School. In addition to these speakers, a number of other famous medical men will appear on the Minnesota meeting program, including Dr. Max Cutler of Chicago, who will talk on cancer; Dr. Harry Alexander, St. Louis; Dr. Frank H. Lahey, Boston; Dr. Edmund Andrews, Chicago; Dr. Percy Brown, Boston; Dr. E. L. Sevringhaus, Madison, Wisconsin; Dr. E. D. Plass, Iowa City; Dr. Thomas G. Orr, Kansas City, Missouri; Dr. J. F. Barnhill, Indianapolis, and Dr. W. S. Middleton, Madison.

This is to be one of the most exceptional meetings of its kind held in United States this year. From the point of its speakers alone, the program is expected to attract wide interest. In addition there are to be a large number of outstanding scientific demonstra-

tions and exhibits, numbering nearly 50, to which two hours of program time each day will be devoted exclusively.

One of these exhibits which will draw wide attention will be an exhibit of animals treated with the thymus and pineal gland extracts isolated by Dr. Adolph Hanson of Faribault, Minnesota. The experimental use of the extract on rats has been carried on by Dr. L. G. Rowntree and his associates of the Philadelphia Institute for Medical Research of the University of Pennsylvania. Arthur Steinberg of the Institute will take the exhibit to Minneapolis and will include besides other animals, a pregnant white rat far enough advanced in gestation to yield a litter of precocious rats either during the meeting or shortly before.

NATIONAL DEBATE ON SOCIALIZED MEDICAL SERVICE IN THE UNITED STATES

The Committee on Interstate Cooperation of the National University Extension Association has announced the national debate proposition for next year. It is as follows:

Resolved, That the several states should enact legislation providing for a system of complete medical service available to all citizens at public expense.

The choosing of the proposition by the national committee means that it will be debated by more than 100,000 students in the high schools, colleges, and universities throughout the nation. The debates will be heard by large and small audiences, in auditoriums and over the radio. Past experience has demonstrated that public interest generally will be stimulated.

In order to provide students with adequate materials for the study of the proposition, the committee is devoting the eighth annual Debate Handbook to the field of medical economics. The editor of the volume is Mr. Bower Aly, of the Department of English, the University of Missouri. It is the function of the editor to secure contributions and to select reprint material which will reflect current medical and lay opinion. It should be noted that the conventions of debate do not limit the discussion to the actual statement, since the negative may offer counter-plans, such as compulsory health insurance, group practice, or annual fee payment.

Persons or organizations interested are invited to write immediately to the editor, or to send him copies of published articles which may be thought suitable for reprint or listing in the bibliography. Address Mr. Bower Aly, Room 216, Jesse Hall, The University of Missouri, Columbia, Missouri.

A list of institutions cooperating with the committee on interstate cooperation during the past year:

The University of Alabama.
The University of Arizona.
The University of Arkansas.
The University of Redlands (Calif.).
The University of Colorado.
University of Georgia.

Indiana University.
 The State University of Iowa.
 The University of Kansas.
 University of Kentucky.
 Louisiana State University.
 Bates College (Maine).
 The University of Michigan.
 The University of Missouri.
 The University of Nebraska.
 The University of New Mexico.
 University of North Carolina.
 The University of North Dakota.
 Ohio State University.
 The University of Oklahoma.
 The University of Pittsburgh (Pennsylvania).
 The University of Tennessee.
 West Virginia University.
 The University of Wisconsin.
 The Idaho High School Declamation and Debate Association.
 The Illinois State High School Music and Literary Association.
 The Indiana High School Debate League.
 The Minnesota State High School League.
 The Montana Debate League.
 The Oregon High School Debating League.
 The South Dakota High School Debating League.
 The State Department of Education of Washington.

UNITED STATES CIVIL SERVICE EXAMINATIONS

The United States Civil Service Commission has announced open competitive examinations as follows:

PROTOZOOLOGISTS

Applications for the positions of protozoologist, and associate and assistant protozoologists, U. S. Public Health Service, Treasury Department, must be on file with the U. S. Civil Service Commission, Washington, D. C., not later than June 17, 1935.

The entrance salaries range from \$2,600 to \$3,800 a year, subject to a deduction of 3½ per cent. toward a retirement annuity.

Optional subjects are (1) General protozoology, (2) Intestinal protozoa (especially *E. histolytica*), and (3) Blood protozoa (excluding malaria).

Applicants must have been graduated from a college or university of recognized standing with the completion of at least 118 semester hours, of which not less than 24 semester hours must have been in bacteriology or biology, and applicants for the position of protozoologist must also have received an M. D., or a Ph. D. degree from a recognized institution. In addition, certain postgraduate study or experience is required.

Full information may be obtained from the Secretary of the United States Civil Service Board of Examiners at the post office or customhouse in any city which has a post office of the first or the second class, or from the United States Civil Service Commission, Washington, D. C.

ANNUAL MEETING OF THE AMERICAN ASSOCIATION FOR THE STUDY OF GOITER

The annual meeting of the American Association for the Study of Goiter will be held at Salt Lake City, Utah, June 24, 25, 26, 1935.

The program is as follows:

Monday, June 24

MORNING

- 8:30—Registration at hotel.
- 9:30—Address of Welcome—Mayor of Salt Lake City.
- 9:45—Dr. Gordon S. Fahrni, Winnipeg, Canada.
 "Etiology and Treatment of Recurrent Hyperthyroidism."
- 10:15—Dr. Robertson Ward, San Francisco, California.
 "Malignant Goiter—Statistical Survey of Sixty Cases, with Comparison of Geographical Types."
- 10:45—Dr. Frank E. Rogers, Denver, Colorado.
 "Some Problems in Thyroid Disease."
- 11:15—Dr. Frazier's Clinic.
- 11:45—Discussion.

AFTERNOON

- 2:00—Dr. Edwin G. Ramsdell, White Plains, New York.
 "Calcinosis Universalis."
- 2:30—Dr. Russell M. Wilder, Rochester, Minnesota.
 "The Etiology of Hyperparathyroidism"—Collaboration with Dr. L. P. Howell of the Clinic.
- 3:00—Dr. S. D. Conklin, Sayre, Pennsylvania.
 "Myxoedema and Hypothyroidism."
- 3:30—Dr. LeRoy Downing Long, Oklahoma City, Oklahoma.
 "Thyroidectomy for Psychosis of Hyperthyroidism."
- 4:00—Dr. E. C. Moore, Los Angeles, California.
 "Twenty Years' Experience in the Management of Goiter."
- 4:30—Discussion.

Tuesday, June 25

MORNING

- 9:00—Dry Clinics.
 Dr. R. S. Dinsmore, Cleveland, Ohio.
 Dr. Harold L. Foss, Danville, Pennsylvania
 Dr. Ralph T. Richards, Salt Lake City, Utah
- 11:00—Utah Goiter Survey.
- 11:30—Doctors Mayo.

AFTERNOON

- 2:00—Dr. H. H. Searls, San Francisco, California.
 "Toxic Adenoma of the Thyroid with Associated Hypothyroidism."
- 2:30—Dr. George W. Swift, Seattle, Washington.
 "Malignant Exophthalmus."
- 3:00—Dr. Fred W. Rankin, Lexington, Kentucky.
 "The Surgery of the Parathyroid Glands."

- 3:30—Dr. Frederick A. Collier, Ann Arbor, Michigan.
 "Riedel's Struma."
 4:00—Dr. M. L. Montgomery, San Francisco, California.
 "The Lingual Thyroid."
 4:30—Discussion.
 7:30—Annual Dinner.

Wednesday, June 26

MORNING

- 9:00—Executive Session.
 10:30—Dr. Willard O. Thompson, Chicago, Illinois.
 "Quantitative Observations on the Effect of Iodine in Exophthalmic Goiter in Chicago."
 11:00—Dr. Millard Rosenblatt, Portland, Oregon.
 "A Clinical Analysis Plus Unusual Cases."
 11:30—Dr. Arnold Minnig, Denver, Colorado.
 "Tendency Toward the Medical Treatment of Exophthalmic Goiter."

ADVICE OF TRAUMATIC SURGERY

In *Southern Surgery*, Dr. John J. Moorhead outlines sixteen points to be remembered when caring for traumatic surgery injuries.

John J. Moorhead (*Southern Surgery*) gives some good advice in the form of precepts in traumatic cases.

1. Every wound not made with surgical intent is already infected and should be so regarded and treated.

2. In the first six hours accidental wounds are practically germ-free and hence treatment within these golden hours is likely to be successful.

3. The essence of wound treatment is an attempt (a) to remove foreign material such as dirt, and (b) to remove serum, blood and devitalized tissue as represented by bruised or frayed skin, fascia, muscle or other elements.

4. Antiseptics strong enough to kill the organisms are also strong enough to kill the organism, and no farmer-doctor within hearing is fool enough to kill vines by any solution used to kill the bugs. That is just not done by gardeners but is still done by some doctors.

5. Soap and water, and more soap and water, and yet more soap and water is the best cleansing agent, plus gasoline for grease or tar.

6. Beware antiseptics with gaudy colors, or hard-to-pronounce names, or high-falutin formulas, or fancy labels, or attractive advertising, or liberal samples, or spats-bedecked salesmen, or endorsements from the mighty who rarely see your kind of injuries. Giddy colors may be good for chromatic, but bad for traumatic surgery.

7. If you must use an antiseptic, use it for first aid, before and after the soap and water cleansing, but not as a substitute therefor.

8. Drain every accidental wound, using a strand of suture material, a rubber band, or a pipe cleaner. Use no gauze drains unless there is a need for hemostasis or ballooning, and, if so, soak the gauze in soap suds,

olive oil, camphorated oil, albolene or vaseline to prevent sticking.

9. Suture sparingly, and in any contused laceration treated by debridement place but do not tie the sutures until the end of the third day. In the interval cover the area by a sterile wet dressing of iodine-saline solution (Tr. Iodine one dram, saline solution one pint). This is the so-called "delayed" or "primo-secondary" suture, and there is no more important phase of traumatic therapy than this. It is the treatment for compound fractures. If we wait three days before tying the sutures, we can then be certain as to the sterility of the wound because the usual pus-producing organisms run their life cycle within that time.

10. Exercise especial care in wounds of the hand; next be careful in hair-bearing zones.

11. In infected wounds, do not incise for redness, nor red streaks, nor swollen glands unless there is localized pain, localized fluctuation or localized induration.

12. Infections can often be localized by hot, wet, massive gauze dressings of tap water, saline solution or magnesium sulphate. Keep the dressings moist by inserting into the meshes a perforated rubber tube and into this introduce the solution. Keep it hot by an electric bulb or an electric pad.

13. When incising for infection, make the incision long enough and deep enough to provide self-gaping, for if gauze has to be used for keeping the edges apart it will soon plug up and seal the orifice. That is taxidermy, not surgery.

14. In the granulation stage, exposure of the wound to open air, sunlight and electric light will bring about smoother and quicker healing than forced healing through the agency of wound fertilizers, such as balsam of Peru and others. Try this method in your next case, and at night cover the wound with a dressing of equal parts of sterile olive oil and camphorated oil. Sunlight and sea water are the best natural healers.

15. Keep the area affected at rest for the first three days during the presumptive infection period; but thereafter move it to promote circulation and to avoid contractures.

16. Keep dressings off wounds above the neck; indeed, it is a good thing to keep dressings off any area when protective coverage can be provided by a wire frame, or cellophane or some glorified vaccine shield device.

PHYSICIANS SERVE

If all men could agree so thoroughly that their objective was genuine service to mankind as do the physicians and surgeons, the world would rapidly become a better place in which to live.—David Dietz, in Cleveland Press.

IMAGINARY

Professor in Higher Mathematics: "Give an example of an imaginary spheroid."

Student: "A rooster's egg."

Original Articles

FUNDAMENTALS OF MEDICAL RELIGION

CHARLES S. SKAGGS, M. D.

EAST ST. LOUIS, ILL.

One year ago, the House of Delegates of the Illinois State Medical Society placed in my hands the Presidency of our Society. It seems but yesterday to me, and in the true measure of time it has been but a short day, a day too short in which to finish the task assigned me.

I was pleased to receive the office, because it offered me an opportunity for service. I have been happy with the office because it afforded me the privilege of service with friends. I regret to leave the office because there is much which I had hoped to do left unfinished; but I shall gladly help to carry on.

In my farewell address to you, I have no desire to submit any new plan, but I do desire to plead with each of you to use the plans we have and to become more interested in the fundamental principles of organized medicine, to pledge yourself to maintain these principles in yourself and in your county society that the individual relationship of patient and physician may remain unhampered and unchanged except in so far as the patient and his physician may agree.

The reason why I have not searched for any new plan to carry on the practice of medicine is that I do not believe a new plan is needed. I do believe that we should reunite ourselves in the bonds of medical brotherhood and live the principles and ethics of organized medicine in our individual lives. For this reason, I have not delivered any official addresses, but I have tried to preach a medical gospel, asking that we return to our true worship of organized medicine and a loyalty to its principles that our profession may remain unmolested to safeguard the health of the people of our state.

I believe and have undaunted faith in the art and science of medicine. For this reason I am a physician and I believe and have the same faith in organized medicine to maintain and advance the standards of medical science. I also believe that organized medicine will continue to be the

safest and best protection for the health of the people and that all medical problems should be left to our organization.

For the past ten or more years, the clouds of state medicine have been appearing in the skies of organized medicine. These have become heavier each year. Some five or more years ago, there began floating over the medical skies the clouds of Health and Sickness Insurance. These too, have become heavier and for the past two years the clouds of socialized medicine have darkened the few rays of light that were left.

The medical day for organized medicine broke dark and threatening. It seemed almost certain that a storm was impending that would wreck if not completely destroy our organization. I must admit that I looked out upon this morning with a definite feeling of anxiety, if not of fear. Perhaps this feeling was intensified by the realization that in my hands I held the biggest office in the state society. You had intrusted to me the leadership for this day, a responsibility for which I had wished.

The day is well spent. It has been a busy day for all who have had a part in it. I have enjoyed each moment for each moment has had its problems not easy to solve but there was always the possibility that effort would be rewarded. As I look back over the year, I can see results of effort. The clouds of State Medicine, Health Insurance and Socialized Medicine are still in the skies but I believe they are a bit lighter, at least we fear them less for we are more determined to meet what may come.

A year ago, it appeared that organized medicine was thinking in the term of "Why try." Today, the attitude is different. Physicians everywhere are becoming interested in their own cause. We are beginning to realize that our long years of service have developed strength and if this strength is used we will have the power to repel any force that is brought against us. All we need do now is to concentrate this power into united action. If this can be accomplished, the public will be safeguarded and organized medicine will go forward unmolested and unrestricted by selfish interests that would willingly sacrifice the helpless sick on the altar of money.

Organized medicine has been called a closed corporation, a trust. We are willing to accept this statement as true if the interpretation of a

closed corporation is in keeping with the meaning which organized medicine has given this phrase.

We do believe that the medical man is the only one qualified to treat the sick and direct the health of the people. We believe this because results have demonstrated this fact beyond question. Our belief in this fact has been strengthened by the fact that the proponents of State Medicine, Health Insurance and Socialized Medicine all propose to use doctors in the care of the sick. The only thing these proponents propose to take from the doctor is the right to receive money for his service and to divert it into the pockets of the money changers with the promise of reducing the cost of medical care. Organized medicine knows that this promise cannot and will not be kept and is convinced that those who propose it know that it cannot be kept.

Utilities promised the public reduced cost and better service. Has this promise been fulfilled to the masses? The only reduction in cost has been to the chosen few who share in the profits of the increased cost to the masses. The promise of better service has been met by denying the public the right to complain without redress. In like manner will socialized medicine meet its promises to the sick.

In my opinion, there is but one reason why certain interests want State Medicine and that reason is money. If it were possible for organized medicine to care for the sick without the exchange of money, the proponents would soon disappear and fade from sight. The care of the sick is not all organized medicine would have it to be. The medical profession has recognized this fact since the dawn of medicine and from that day to the present moment has thought and labored to bring into being a medical service that would meet all the needs of those who must be sick. The medical profession asks that its interest in the care of the sick be left undisturbed. If this is to be classified as a trust, then organized medicine is a medical trust, and to this trust it will strive to be true. The medical profession has looked beyond a perfect care for the sick to a time when all sickness would be preventable.

We have been accused of having selfish interests in the sick in that we oppose all rights of others to treat the sick. This we gladly admit, for we know that we will use any method that

will restore the sick to health. We have a farther so styled selfish interest in the health of the public in that we know that anything that is to be a benefit to the medical profession must first be a benefit to the public before it can reach us.

The medical profession has been accused of not delivering the best medical service to all classes of people. We knew long before anyone else that all did not receive the best medical service and from the moment we knew it, we have been endeavoring to find ways and means whereby all who were sick would receive adequate medical service. We have accomplished much in this respect in the face of much opposition and those who have talked the loudest about this fault have done the most to prevent an adequate medical service.

Such men have given millions that certain classes might have so-called free medical service and at the same time paid wages that so lowered the morale of their employees that they knew not how and when to use health service.

In the face of this the medical profession has delivered a good medical service unto them that failed in results because they could not apply it.

If industry and social science will evolve a plan whereby all may have employment who merit it at a living wage and prevent periods of unemployment, organized medicine can and will render an adequate medical service to all, within their ability to pay for it.

Is organized medicine going to maintain itself? This is a question that we must answer. We know that we can, but the fear is that we will not. We are individualists and in so far as this relates to the practice of medicine, this is as it should be, but in our organization, we must unite our individualism for the good of the whole.

In the face of the problems that face society today we can well ask ourselves, "Why has not our moral and social life increased with our material advance?" Can it be that science has betrayed us and put into our hands those things we need least or have we as a people refused to keep within us that principle which would have made these material gains a blessing rather than a curse?

There has gone out of the people a something that must be put back into them if our civilization is to continue and that something is character, that which makes you and we worthy to be

trusted and to trust. If organized medicine is going to maintain itself it must have character and for organized medicine to have character the individual physician must have character. Then it can have sincerity of purpose and lay aside selfish interests which corrupt the individual and the organization.

The principles of organized medicine are unselfish and worthy of continuance and will continue if there are not men who are corruptable, who are willing to open the doors for medical crime to enter for selfish gain.

Jacob's ladder was built for a selfish purpose, but no one ever reached Heaven by climbing it.

Can it be that a profession which is so grounded in the soil of idealism as medicine is going to admit that it is not capable of maintaining an adequate and efficient medical service for the public and by so doing become a party to giving to the politicians and the social welfare worker the right and privilege of directing medical service to the people. A group that is under the control of government agencies, which are already looked upon as being saturated with graft and corruption. We of the medical profession who for this long stretch of time have cared for the sick, planned for their sickness in advance, sought for and found remedies to restore them again unto health, sought for and found ways to stamp out diseases that caused them to be sick; we who have dreamed of a day when a cure for every disease would be available to every sick individual, we who are longing for that Utopian day when all disease will be preventable and sickness and pain will be no more; are we to surrender our birthright into the hands of those whose only interest in the sick is selfish gain.

Business has said that the medical profession should be directed by those who know business principles. In this financial storm which has been ranging throughout our land since 1929, thousands of business men have closed their doors, factories have shut down, banks have failed on every hand throwing thousands out of employment and with these the savings of physicians have been swept away. Financiers have withdrawn from the storm swept field leaving the physician with his patients unemployed and his savings that were invested in the advices of these business men and bankers gone.

On this field, wrecked by those who are schooled in business and finance, stands the physician fighting disease. Not for a moment has he absented himself from his place of duty. He has never denied the suffering relief. The rank and file of the medical profession are dependent upon those whom business and industry have left without means of earning a living.

The doctor, the so-called poor business man, deprived of the major portion of his savings and income, has managed to keep his office open, his home cared for and himself in readiness, without aid from outside sources with the exception of a few isolated cases. This is the type of man of whom it is said, he should have the government to direct him in the care of the sick and that business should handle his money. If the physician is a poor business man, then the evidence is conclusive that what business needs is this type of a poor business man.

The facts are that the physician is only a poor business man when he permits others to handle his business. In like manner will he be a poor physician when he permits others to direct his medical affairs.

In the face of these facts, are we going to turn over the directing of the delivery of medical service and the adjustment of our economic problems to a group who could not prevent the collapse of business and finance, to direct about the only organization that has not only stood by and held what it had but has advanced in the face of the obstacles caused by those who want to direct our profession.

I would prefer to leave the subject of medical economics to the committee on medical economics, but I am constrained to say a few words on this important phase of the practice of medicine.

In this department of medicine, I am convinced that organized medicine has the intelligence to meet its economic problems with a better understanding as to what is needed than anyone outside the practice of medicine. I am not one who believes that the dollar is the fundamental basis of economics and especially is this true in medical economics. In the practice of medicine, it is not a question of how much is received for service rendered, but how much and how good is the service rendered.

This must be the first thought of a physician in all the departments of the practice of medicine

and the department of medical economics is no exception and because it is economics gives it no right to take its place ahead of service rendered, the patient must remain the first consideration.

There are certain fundamental principles that must remain in any system of economics if our economic system is to remain in a healthy state. Our assets must always at least balance with our liabilities. This has not been the modern way, which has led us to believe that our liabilities were of more value than our assets. I need only to quote this well known phrase to make clear what I mean, "Enjoy while you pay." This is not fundamental. This will sooner or later create a system in society that robs the masses of equal rights of justice, which breeds dishonesty, crime and poverty. If right is give justice to all, economics must rest and remain solvent in its assets.

Having too much is dangerous in that it creates a self purpose to have power which creates a greed for more. This destroys production and leaves wealth centralized and the masses are reduced to a state of too little which is equally dangerous to society as too much. Poverty creates a desire to overthrow that which is good and the poor retaliate with the greed to destroy law and order.

Making a living has become the biggest thing in life with far too many of our people and this is equally true in the medical profession. This is the thing that has upset our medical economics. Too many of our profession have been reduced to the place where they feel that their biggest task is to make a living. The greed of the poor is manifesting itself and as a result many are destroying the good in our medical ethics with the same reckless impunity as those who have too much. This has brought about a condition in which we find ourselves working against one another instead of working for each other. This will eventually, if not corrected, cause us to view our patients from the standpoint of how much they are worth in money.

The scarcity of money among the masses, due to unemployment and reduced salaries, has caused many to seek ways of serving large numbers for small fees and poor service. As a result clinics have sprung up here and everywhere. Systems of contract practice have been offered to attract patients and even individual bidding has

been found in many instances. Outside interests have taken due notice of this and have been quick to realize what it would mean to control the medical service of the sick.

I need say no more to present the picture to your minds. This remains for us, as physicians, to realize in our medical economics that our assets must be greater than our liabilities. Our assets are our patients. These assets are stabilized by the relationship that exists between ourselves and our patients. We must know our patients and their ability to meet their medical costs, then we must adjust our fees to their ability to pay.

In my opinion, this will solve many of our economic problems, but if we insist on making the practice of medicine a business, then we might as well consider state medicine our reward.

In the midst of this widespread revolt of the people against paying for the essentials of life, we must not permit the politician with the aid of the social worker to focus the eyes of the public upon the cost of medical service to the exclusion of all else. We, the medical profession, must realize that medical economics is not the only disturbed economic system that the world is facing.

The public is not resenting the cost of its pleasures, be they whatever kind or type, but it does resent paying for those things it must have to remain in a position to have its full share of the pleasures of life.

Organized medicine can, if it will, demand the privilege of adjusting its own economic problems and secure this by making a united stand.

Is it reasonable to assume that those who have failed to adjust the economics of government and of business will be efficient in shaping and constructing a fair and equitable medical economics? Amid all this pondering and wondering, one might look out over the costs of running a world and ask why, out of all the costs incident to living, has the cost of medical care attracted the attention of those who happened to be so concerned about what it costs a particular class to be sick?

This same group does not seem to be worried about how much their liquor costs. They show but little interest about the cost of their food, less about the cost of their clothing, but they are vitally concerned about their medical costs, most of which is furnished free by the medical

profession to the larger number of them. Could it be that these kind hearted generous people have discovered that the doctor has not always been paid for his service and are trying to evolve a plant whereby no doctor will ever be called upon to render medical service without being paid? Be this as you may choose to think, I am still of the opinion that medical economics had better be left in the hands of the medical profession.

The world is being tossed hither and yon and swayed beyond balance by a strong wind of change until no one dare predict what the morrow may bring. Some even question if our civilization will withstand the gale and even the most optimistic feel a tinge of fear as to what the final results will be. That there is reason for anxiety, no thinking individual questions.

The profession of medicine is not going to escape the effects of change that will and must come in our social order.

Change has brought many good things to society and it has brought with these a few that are not good. Both have increased the responsibilities of the medical profession. Medicine must be quick to recognize these needs and move into the open gap.

The world today has more need for an effective and adequate medical service than ever in the history of man. The present high degree of sensitive personalities incident to rapid change has placed humanity in a position it never occupied before and this position is going to need a better and more defined medical art and science.

The present demands of our complex civilization are bringing a new type of diseases that will require a higher and more exacting medical science to understand and treat. From out of these we are beginning to know that there are blood changes that we have not heretofore met. These must be understood. Our endocrine system will bring forth new conditions which will require study. The nervous system of man is going to have a strain put upon it that is going to react to the more common maladies in a different manner than in the past. If organized medicine is going to ask to remain undisturbed it must be ready to cope with these changes.

If organized medicine is to meet the demands of these changing events of society, the family physician must remain, since he occupies much the same relation and exerts the same influence

upon the practice of medicine as does the home and family upon the social and economic life of America. If America can sacrifice the home and family and continue to make progress in her social and economic life, medicine can eliminate the family physician and maintain a satisfactory medical service; but if the home is to be maintained, the family physician must remain to care for the medical need of the home. No other type of medical service will meet the needs and satisfy the family.

There never was a greater need for the family doctor than today and I believe that the signs point toward greater and better family doctors and a greater number, for the opportunities and need are greater in this field of medicine than any other.

If organized medicine holds fast to its rights, the public will demand from it a family physician and organized medicine will supply a family physician who will approach the bedside of his patient mentally equipped with modern medical science; but with this, he will bring a personal touch which will minister unto him as a human being.

Man cannot make progress without faith. This is true because man does not understand all things and until man's mind has made clear to him all things he must believe, and to believe, he must have faith.

The science of medicine is still above man's understanding and until we, as physicians, have solved all the mysteries of our science, we must have faith if we are to make progress.

The greatest single need of this new age is a clear and strong faith and this is equally true in organized medicine (having always had for its foundation the belief of truth) which has swayed a bit too far from this fundamental principle and has partaken too freely of the greed of capitalism.

Medicine must have faith that right will hold safe the heritage which is ours and that we can continue to rise above the selfish interests that lead to the destruction of our profession. Our faith must be well grounded for it is the one and only adequate response that will bring us to that place where confidence and trust and loyalty will govern our relations one with another.

We must be willing to help one another. We cannot and will not hold our organization intact

and cause it to function to the best interest of those true principles of organized medicine unless we are willing to help each other along the way. I realize that it is hard for us to have faith in each other, for we cannot deny the fact that it has been shaken deeply in mankind in the last few years. It is hard for us to believe in one another in the attitude of trust.

There are many reasons for this but the principle reason is that we are living in a materialistic age. This makes it easy to believe in the visible and have faith only in money. The material is ever before us, and we reach for its power and gifts, for we know that it gives a security for our physical needs. This makes it hard for us to have faith in the unseen. It requires a deeper sight than the eye can give for us to see our duty to each other.

Medicine must have a religion. We must have a religion through which we can return to the worship of those great fundamental principles in which our forefathers in medicine had a supreme faith. Perhaps this can best be re-established by having in each county society, an ethical relations committee, whose duty will be to re-establish our faith in our medical ethics. It will not matter much what those outside our profession may do if we have reason to have faith in each other and an ethical relationship will give us that reason.

Medicine is more than a science. The profession of medicine is more than a mere study of the science of the human body in health or disease. Its real meaning reaches out from that spark of sympathy in which it had its beginning, to do good unto those who in faith trust us in the hour of pain. Medicine means a way that will lead to a day when all disease and pain will not only have a remedy that will cure and restore to health, but to that day when the cause of disease and pain will be no more.

If we propose to do this, our religion must rest upon the unseen, that truth and right and good will, shall be the ruling power. In a word, we must measure up to that place where we dare to live our medical lives for the good of our profession and those who trust us. To do this, we must have faith in each other, for it is faith that roots man to his convictions and issues of life.

As I close my talk to you, my year as presi-

dent is drawing rapidly to a close and soon it will be my duty to hand the gavel of authority to my esteemed friend Dr. Charles B. Reed, to carry on.

There is a need of a closer cooperation and understanding between the membership and the official family. For a number of years I have felt that the membership should understand and know the officers of the state society better and that the officers should know what the membership was thinking and what they expected of their officers. I have with the help of our secretary, done everything possible to supply this need by personal contact.

There is a great need for a greater personal interest from the individual member. He must be made to know that he has an individual responsibility and is needed and that he must meet his responsibility if organized medicine is to remain what he wants it to be.

The county society must come to realize that the officers cannot do all that is needed to be done. Each county society must swing into action if organized medicine is to be made secure.

There must be a closer ethical relationship between individual physicians. This in my opinion is the greatest weakness that exists in organized medicine today. If organized medicine is to have strength there must come into being a true respect for our medical ethics. We cannot be untrue to one another and have organized strength.

The absence of this bond allows the strength of organized medicine to lie dormant. Within this bond lies a potential power that would forever safeguard our profession and make secure a safe and efficient medical service for all. To bring these things into being, I have labored and with your help I know that much has been accomplished.

In Holy Writ we read that "A good tree cannot bring forth evil fruit." Much depends upon the tree of medicine.

Again we read these words, "And the Lord God took the man and put him into the Garden of Eden to dress it and to keep it." There is no more beautiful and essential garden in the estate of human affairs than the Garden of Medicine. You and I, as physicians, have been placed in this garden to dress it and to keep it.

A SURVEY OF THE MEDICAL SITUATION

CHARLES B. REED, M. D.
CHICAGO

The medical man of today is deeply affected by the universal social unrest. Change is under way and further change impends. Therefore, it is not unwise to look briefly at the medical problems of the past and present in order to surmise and comment somewhat as to the future.

In days which our elder men may now recall, the doctor of the old school practiced under circumstances which offer much to commiserate but much more to admire and applaud. In place of a powerful gas driven chariot, glassed in and artificially heated, the doctor was lucky enough to have an old horse hitched to a buggy, as it was then called, with reins which passed through slits in the boot for wet weather and with a lighted lantern between his feet for warmth in winter. In those days, now happily outmoded, the doctor's business was a real chore. To some extent he supplied his own drugs, did his own nursing and heard from the patient only when he made his visit.

With such accessories the doctor saw his friends and acquaintances pass away with typhoid fever and undiagnosed appendicitis. His professional children died of diphtheria, singly or in groups, in spite of the most assiduous local applications, and beautiful girls and brilliant boys coughed themselves out of the busy world with tuberculosis.

Antisepsis was not wholly accepted, asepsis was unknown and chlorinated water as a preventive of typhoid, undreamed of. Bacteriology was in its infancy and surgeons were still talking of "laudable pus" and "union by first intention." Vaccination, of course, existed and, though bitterly opposed by ignorance, prejudice and Pharisism, it was the red thread which ultimately led to the broad field of immunization in other diseases.

According to our knowledge today, such a state of affairs is a dreadful memory in which tableau after tableau of heart rending scenes are forced daily and weekly into consciousness. To walk up and down, tortured with fear for the life of some ebbing soul was a too frequent experience, while the "one horse buggy" often stopped a

block from the house until the doctor gathered courage to face a patient burning up with fever and a frightened family disheveled and sandy eyed from an all night vigil. The doctor worked according to his lights, but it took more than lights. It took an intestinal equipment of three, or even four, dimensions.

Anesthesia, happily, was the one redeeming feature of the period, and many a man went into surgery to avoid the distressing scenes of pain, suffering and parental despair which he was powerless otherwise to prevent or mitigate. The conquest of pain by anesthetics and narcotics has developed so remarkably in the last few years that it is no longer necessary for afflicted humanity to gird up the loins and stoically withstand distress and anguish of body and mind for more than a few minutes. Science has triumphed over sensation.

Based securely on Science, Medicine has followed and partaken of their reciprocal fortunes so that in the great awakening which has made the 19th notable among centuries, our profession received a quickening impulse more powerful than in any period of its history. The age of empiricism disintegrated with Darwin and the expansion of scientific knowledge began. From the ashes of empiricism the medical Phoenix arose in the golden plumage of its glorious rebirth.

"For a man who has not gone through the earlier stages of medical progress it is hard to realize what a contrast there is, in our knowledge at that time and now, in terms of health, physical comfort and postponement of death." The change was appropriately associated with, though not ushered in by, the telephone and extraordinarily emphasized later by the Roentgen ray.

In the short fifty years that are covered by the eleven editions of Osler's "Practice," the art of medicine became an authentic science. Principles which explained the origin of important groups of diseases were firmly established. The most significant of these was the bacterial source of suppuration and the infections which produced all of Modern Surgery. Then came the theatric appearance of antitoxin, the Pasteur treatment of hydrophobia, the cause and prevention of typhoid, bubonic plague, tetanus, cholera, malaria, hookworm, whooping cough, scarlet fever, yellow fever, Malta fever, mountain fever, sleeping sickness, infantile paralysis, the



CHARLES B. REED, M. D.

PRESIDENT, ILLINOIS STATE MEDICAL SOCIETY, 1935-1936

cure of syphilis and the prevention of blindness in the newborn. The miraculous resuscitation of the cretin and myxedematous adults sprang into existence and the efficient treatment of other diseases by glandular medication aroused the world to the extreme importance of secretions from the ductless glands.

Besides the infections, conspicuous advances have been made in metabolic and degenerative diseases, though no one has thrown such an illuminating ray on these mysteries as Pasteur did for the infections. Cocaine, adrenalin, insulin, pituitrin, and a thousand new agents have been added to the therapeutic armamentarium. Hypodermic medication, with its innumerable ramifications, has come into general use to prevent and cure human ills.

The action of drugs has been standardized and the curious elements called vitamins are rapidly gaining ground. A definite comprehension has developed about food anomalies and deficiency diseases, such as beri-beri, pellagra, scurvy, rickets, diabetes, and pernicious anemia, while allergy reactions have clarified many obscure problems in pathology. There was never a period when diet was so well understood or played so discriminating a role in the care and prevention of disease as today.

The theory of vaccination, which was ridiculed upon its introduction (1798), fought its way forward very slowly. The world was not ready for it. Medical men were provoked because its operating principle was not demonstrable and conservative men were repelled by the agony of a new idea. Religious people considered it wicked to have a disease which Providence had not seen fit to inflict, while the unsophisticated did not like to make themselves ill of their own accord.

Vaccination for smallpox, however, was finally accepted and knitting with this slender thread the doctors added more and newer fibres until a splendid tapestry of immunization was fashioned which contained diphtheria, tetanus, typhoid, rabies, scarlet fever, cholera, bubonic plague, sleeping sickness, epidemic meningitis and infantile paralysis.

Medicine began to be the science of preventing illness rather than an obligation to carry the patient through it. Prevention of disease is the modern culmination of animal experimentation which began scientifically with Harvey's discov-

ery of the circulation of the blood in 1616. Prevention of disease must be expanded and taught not only by treatment but by the clearer differentiations of epidemiology as a science. Thus it becomes again the high duty of the physician to diminish and destroy the rewards of his labors as in the Age of Titans, the God Saturn devoured his own children—as Time, the glutton, consumes and devours all things.

Without exception, every one of the victories over disease which have been mentioned has been won through post-mortems and through elaborate experiments upon frogs, mice, guinea pigs, rabbits, cats, dogs, cows, horses, monkeys, and zealous, self-sacrificing men.

From Harvey on circulation and Hunter on ligature of bleeding vessels and the facts of collateral circulation in the 17th century through Tiedmann's study of digestion, the work of many observers on the heart and lungs, on inflammation and wound infection, Claude Bernard's investigations on the liver and sympathetic nervous system up to and including the grand pyrotechnic display of the last eighty years wherein more than twenty previously fatal diseases became definitely preventable and curable, animal experimentation has been the sure and effective road to knowledge.

Nor have our fellow animals themselves been neglected. They, too, have been safeguarded as well as their owners. To the list of human blessings must be added the control of anthrax in sheep, swine fever, chicken cholera, glanders of the horse, silkworm disease, tuberculosis of cattle, and distemper of dogs. In the matter of distemper alone, Science has done more for the health and happiness of our dog friends than all the misdirected sympathies of the sentimentalists and publicity seekers.

It would seem as if no one could learn of these brilliant accomplishments without a thrill of admiration and a warm sense of appreciation and gratitude for the men who have succeeded in preventing multiple fatalities and widespread epidemics.

But this was not to be. Every step has been opposed by the ignorant and bigoted who feared for the safety of their favorite fetish. This warfare still goes on. The dwindling residue of the anti-vaccinationists of the past has been joined by the anti-vivisectionists of the present. In this group of fanatics, reactionaries of every degree of hebetude have acquired a congenial

environment. Here are found the fatuous, the fanatic, and the purposely perverse who are condemning and fighting the scientific methods which have kept them and their friends on earth. They strive to hold back the forces of civilization by amputating the hand of rescue.

Not infrequently also, women clothed for comfort and adornment in skins of animals that have suffered for days in the traps will spend unmeasured vitality combatting scientific experiments on anesthetized dogs. Such an ardent incongruity recalls the ancient comparison of Satan, sitting on the wharf of Hell and rebuking Sin.

All these factions, cults, and unsystemized personalities oppose the progress of that science by virtue of which they live. All fight rational health improvement in behalf of some pet dogmatism which means more to them than any human betterment. A kindred example of the mental stagnation and emotional obliquity which resists social progress is found among the people who resent the introduction of bath tubs and show the depth of their aversion by using them as potato bins.

Science can contribute abundantly to the security and happiness of humanity but it cannot, as yet, endow cranks and cultists with intelligence and balanced brains.

Nevertheless the boons that medicine has brought to man are priceless. The greatest difficulty is to get these boons to the people who need them. The occasional lack of medical care is not the fault of the doctor. Many families are wedded to the cults and will not attempt relief except in their own thaumaturgic way. Others are perverse, improvident or obtuse while an extremely large number are immature and always will be. They have no sense of deficiency, no impulse to change nor any desire to cooperate but they do have an overweening eagerness to be fed, clothed and medically cared for without personal effort or expense. These important accessories having been provided by the State and the doctors the birth rate among them steadily rises. To this constantly expanding futility medical men are donating \$350,000,000 in service every year.

This therefore is the burden which the medical man faces. This burden he must strive with and lift. No wonder he grows weary and depressed. No wonder after a brief, infrequent

holiday he says to himself, or his intimates "what happy hours were they in their contrast of sloth and indifference, with the anxiety of mind with which in practice, one goes from one responsibility to another and always with the thought that while meaning to do good, one may through carelessness, or inadvertence do harm."

As one doctor leaves the scene another, usually younger, comes forward vigorous with hope and power, to take his place. Every vacancy makes opportunity for one or more new claimants, through an aberrant form of ambition possibly, who strive with eager emulation to win and retain a precarious and often distressing position which demands anxiety, reflection and insuperable equanimity.

The young men who have been venturing into practice since the new century began, come frequently to mind. Watching them as students and as internes we see them go out from the hospital with a technical equipment which would have given them a world wide fame as specialists in the 19th century. In medicine, surgery, obstetrics and pathology they are superbly prepared to meet any emergency. They find locations and gradually build up an acquaintance which relies upon their skill, devotion and judgment. They are immeasurably useful to their patients and their communities. They are recognized and esteemed by the characters they have formed and by the poised and pervasive personality they display. Medicine is an exacting mistress to its devotees and yet there is no pursuit which possesses at the same time so much unity and so much variety.

The doctor of today has a divine discontent because he is conscious of his worth. He realizes his competence, and has the courage of his faculty. He is anxious to exert himself, to utilize his talents, to demonstrate his technical mastery over disease. He justly desires both the opportunity to display his efficiency and the public recognition thereof. But alas! he has been betrayed by his own excellence. He is himself responsible for the fact that in a city of more than 3,500,000 people only four or five hundred cases of contagious disease are reported for most weeks of any year. Less than a hundred pneumonias, none to six diphtherias, and no typhoids are bulletined week after week and month after month. Up to 1875 one woman out of every five died of infection during

childbirth while now many hospitals will go year after year without a single case of puerperal infection.

Ought this condition to distress us, or should we rather be proud of the technic which has made it possible? Ambitious men of the last half century eager to burst the bonds that crippled their art, discovered through vivisection the secrets of physiology and pathology which bring about these results. There are regions indeed where such reports cannot be issued but they are becoming fewer as the enlightened doctors carry their influence and technical training to wider fields. It is the natural consequence of thorough education in the basic sciences, and in the constant apposition of student and disease by clinical confrontation.

The great clinical teachers of the past inspired their classes with enthusiasm and taught them from their wide and ever growing experience. They cultivated powers of observation and impressed upon their students the clinical pictures of disease. Is it possible, we wonder, if some of these great teachers have been sacrificed on the altars of the laboratories. Diagnoses are now made by laboratory analyses, x-ray examinations, metabolic readings, electro-cardiograph tracings, and bio-chemical studies. All of these tests are of extreme interest and value to the teacher and student but do they not tend to take from the doctor that deftness of manipulation which characterizes the expert?

The doctors are repair men, not of machines but of bodies, and prevention of disease is an essential part of their work today. Their technical pride, ambition, and social outlook make it necessary to sustain and repair the old and the young, the curable and incurable, the madman and the fool. They preserve at infinite cost, and at infinite loss to society, the incompetent and unfit of every grade, type and degree. In this process the doctor deliberately and consciously, as a phase of modern progress, violates one of Nature's most stringent rules and purposes regarding the human animal and one which is paramount in all other forms of existence in Nature.

But many medical men, notwithstanding their success, their competence, and pride of performance are justly unhappy over the conditions which they face today and discouraged about the future. They look around them. There is no

man in their community who performs the duties of life better, or carries his responsibilities more seriously. Then Dives drives by, the magnate of the woolen mills perhaps, or the watch factory. He rolls down the street in a commodious car with a complacent smirk on his face, or a portentous frown depending on the pose he chooses to assume.

It must be, thinks the doctor, that this man's days are passed in cocktail contemplation; in languid tea-tabular felicity, or even in the elegant immoralities of an idle opulence. Possibly the days are thus frittered away. They well may be for the loyalty of Dives to his idol is like the devotion of the Egyptians to the god Apis,—they chose a calf to adore and it can never be anything else e'en though it be the golden calf of the Pentateuch.

For the moment the doctor is peeved for it is not given to the children of men to be philosophers without envy. He is envious because it is irksome to spurn obvious delights and live laborious days. Then he laughs in his sleeve. The reasoned understanding, the technically trained, farseeing sagacity of the medical man recovers itself and he knows he would be bored by the futility and humiliated by the emptiness of a life so idly disposed while important problems remain to be solved and sick people restored to health and happiness by his personal skill.

The doctor realizes as no one else can that happiness is secured only by absorption in some vocation which satisfies an innate restlessness of spirit. He has "bestriden wild steeds and will lead sumpter mules no longer." The song of the sirens leads him on and "he dreams of slaveries redeemed, of brave revolts, and fate confronted in the high splendor of disdain."

Naturally those who work hard are cross if they fail of reward and those who desire ardently are vexed by non-success but the doctor is a philosopher. He has taken his place in life and no one but himself can demean it. Although he is rarely contented yet he has his happy moments. The depth, width and extent of his work, its bewildering diversity, its vivid discoveries and its scientific truth sprinkle his life with joy. So too, does humanity, rich in good will and intimate associations.

The wise doctor therefore develops coolness and imperturbability while waiting for professional emergencies and preferment. In these

days of doubt and discouragement he may find a peculiar solace in an avocation. His mind is rested and its tension relaxed by setting another portion of the brain to work; a part which has been lying dormant while professional claims and anxieties engrossed its fellow. Highmore discovered his antrum while waiting for patients. Jenner drew comfort from the violin and recognized the truth of vaccination while observing cattle. Clopton Havers found the Haversian canals during hours of leisure. He pursued his canals as an avocation.

The use of an avocation is not to help the doctor into practice but to console him for want of it and especially to rest the soul wearied by too much responsibility for like Martha one becomes tired from over much serving. The health and welfare of a rational man requires the semblance of industry to preserve his pride and its actuality to preserve his soul but a change of industry provides a new orientation, a provocative point of view, and strengthens that art of detachment which is a very present help in time of trouble.

Let the avocation then be whatever an interest invites, be it cultural or practical, for man does not live by bread alone. Not for communicable satisfactions but for things remote and even fathomless. He may go to the laboratory or to literature, to painting or photography, to etching like Hammerton or to fishing like Henschell in the firm confidence that living largely, even in cold thin atmospheres at times, is better and more stimulating to mind and body than a narrow success with its gregarious ease for as Stevenson says, "it is better to travel pleasantly than to arrive."

All this is true but what can the medical profession look for in the future from the Socialistic forms of medical practice which are proposed today? This brings up another aspect of the question which bears down crucially upon them all at present. The Government has taken hold of various branches of medicine in a way quite undreamed of in earlier years. These interventions have not been altogether unsound, nor undesirable whatever criticism they may inspire.

The common problems of hygiene and sanitation, of epidemics and public health are really governmental responsibilities for only such authorities have the resources, equipment and ap-

purtenances to work on the vast scale which these extensive enterprises demand. In these matters Government has assumed certain functions which may reasonably belong to it but in its efforts to regulate public health and intervene more particularly in medical affairs, it has, without due examination of their fitness, encouraged the cultists and others who are not qualified by education, or mentality, to practice medicine and have no consciousness of the dangers which their intrusion involves. In consequence the vital interests of the public have been seriously impaired and its health imperiled.

"In a democratic society there is always the tendency to penalize the efficient and prosperous for the benefit of the weak, the shiftless, the idle, and the slacker; to take from the thrifty and give to the unthrifty and make those who have, spend on those who have not." In other words, like the trade unions, to bring all down to the level of the lowest and most incapable instead of trying to inspirit, elevate and organize the hopeful part of the mentally or physically afflicted into some degree of virility and independence, by developing their manhood.

In the last few years this movement has advanced rapidly under the encouragement and subvention of the Foundations and after the onset of the depression it received a renewed impetus from Social Theorists so that now we flounder about in a tempestuous sea of socialistic experimentation. The advocates of change have found close at hand the State with its great and undeniable influence and they strive and scheme to use the vast machinery of the State to replace objectionable and impeding opinions with others more consistent with their theories and ambitions.

The first vocation to feel the direct effect of this campaign is medicine, for sickness and misery, disease and trauma are all about us and elicit universal sympathy. Yet only an extraordinary egotism, a feeling that he is wiser than the rest of mankind, or more self seeking, would permit a person to assume that he could—without medical training—regulate the medical needs of a whole people who desire to and are better qualified to manage their own affairs and to greater satisfaction and advantage. Nevertheless the Social Theorists persistently urge their purpose to administer for the patient and the doctor. It does not matter that medical men

are more anxious than others to meet their social, public and professional obligations and are more unselfish in doing so. In part doubtless the very willingness of the doctor to help, to cooperate and lend his time, energy and professional skill to eleemosynary movements and institutions is the weak spot in his armor which invites attack, for the inherent nature of his calling makes the doctor his own worst enemy.

State medicine and Health Insurance are offered as panaceas and the assault in these sociological adventures is led by multiple groups of professional altruists, salaried doctrinaires and freakish philanthropists who are obsessed by the idea that they must act as benefactors and uplifters to the lazy, the improvident and the drones, the incompetent and the subnormal. Moreover the ambitious worker is deprived through the same agency of his pride and self-respect. If this principle is carried to its logical conclusion so that everyone joins the biologic bankrupts and the Social Theorists on the public payroll who, it may be asked, will provide the universal dole?

The Social Theorists profess to live not for themselves but for the world. When sincere they have a Messianic complex up to the point of self sacrifice. Mostly they yearn to be the intermediary who directs the patient to the doctor and the doctor to the patient and thus exploit both for personal advantage. From ignorance to arrogance is but a step and these people are drunken with a dream of cosmic communism in which they hope to attain positions of importance and sit, however obscurely, in the seats of the mighty. They like to fancy they are doing God a service but analysis leads one to infer that they are enjoying the sublime, if unwonted, pleasure of acting from above, ostensibly for the benefit of humanity but actually for selfish release of their own emotions by means of other people's money and other people's service.

Although fundamentally ignorant of the medical viewpoint yet the Social Theorists are shrewd enough to appreciate the cardinal importance of the doctor's position and are eager to capitalize it so far as their opportunities permit. Their self-indulgent meddlesomeness merely complicates a problem already difficult. "Tyrants," said Lincoln, "bestride the necks of the people on the plea that it is for the people's good."

Thus socialism in medicine goaded onward by an ambitious, organized mediocrity, smiled upon

by a genial and compliant Government, and encouraged by political hopes, inches along and elbows in, undeterred by sound objections which are iterated and reiterated with no more influence or effect than the early protests against Prohibition. The human mind may learn by weighing freely the arguments pro and con but in this medical business the Theorists are bent and determined upon using a hapless and crippled humanity as a form of animal experimentation. Discussion and disputation are as hopeless and vain as the preaching of birth control in a rabbit warren.

Action by Congress must be expected as a consequence of this self-exploiting propaganda, in spite of earnest and intelligent opposition. No one can foresee what direction the move will take but it is hoped, before a change is attempted, that our public men will find a little time for independent thought, however painful the act may be: a reasonable time for patient and anxious reflection, lest what they produce may be hateful alike to God and to the enemies of God. Never has the world needed precepts of daring, courage, individualism, more than in this age of cowardly self seeking, wherein beguiling promises of professional altruism with its soulless well being and the sleek Sophistries of the Social Theorists seem to menace our very existence.

No one can conduct the business of medicine as well as the doctors who are personally and vitally interested in its success. The Social Theorists and officious charity exploiters have in view only administrative opportunity and substantial salaries. They are fishing hopefully in troubled waters.

All the hitherto suggested changes in present methods of medical practice are wholly unnecessary and unwise. It is unnecessary because statistics show that America already has a lower morbidity and mortality rate than any other country where the practice of medicine is either independent or managed by the State. It is unwise because Government interference not only impairs and breaks up the legitimate performance of medical work but brings into being a bureaucracy which adds unreasonably to political power and expense.

Bureaucracy in medicine debases the recipient, destroys the freedom of the people in the most serious emergencies of life and takes from the physician his proper pride and ambition. This experience has been repeated time after

time in the European insurance schemes where the people are herded into groups and given "chain-store" medication by apathetic physicians.

To put the practice of medicine into a bureau controlled by Social Theorists and "Charity brokers" is as stupid and mercenary as to gather all the painters, sculptors and architects into a union under the management of a political "lame duck" who needs the salary.

Any such appointment would be disastrous to the principles and practice of art but if by chance the administrators were as intelligent, as they are self-centered, they could form a bureau of such political power that nothing short of a bloody revolution could abolish it. A law of life requires that power once obtained tends to expand indefinitely and the more skillful and scientific the administration becomes the more dangerous is the bureaucracy for no well established political organization would permit a reform contrary to its interest. The hope therefore in a departmental practice of medicine would lie in the low intelligence quotients of the Social Theorists and charity merchants who might become the political heads of the projected bureau.

The anti-vaccinationists although ignorant and prejudiced were at least honest. The anti-vivisectionists, owing to an innate perversity of temperament, are inconsistent and purblind in their opinions but the Social Theorists are not only acting in conflict with the laws of nature but they are pure racketeers who, like the gunmen in the unions, will stop at nothing to secure for themselves place, profit and power. In consequence an organized hypocrisy is on the march.

The enormous expense is not to be discussed since in these days of abundance a few billions of dollars are scarcely noticeable but the burden will be keenly felt when the bill is being paid.

The Health Plans thus far projected carry with them the threat both of professional deterioration and biologic stagnation but if enacted the injury will fall upon medical progress rather more at first than upon the personnel for the racketeers will step carefully until their organization is generally accepted. On the other hand the doctor's usefulness is too great not only to the bureau but to the public. He is too well entrenched also by contact and tradition in the love and confidence of the people to lose caste

seriously. He supplies a need which no one else can. "He may be unpaid but he is not unemployed." In this recent catastrophe the medical profession has suffered more and given more than any other group but in spite of this the "still bloody but unbowed head" of the medical man is relatively safe.

With the numerous and diverse changes which hover about the doctor it would be hazardous to predict the duration of this security but I believe it will last as long as the sons maintain the ideals and traditions of the fathers.

No other profession can boast the same unbroken continuity of methods and ideals. It is "organized experience guiding itself by the tongues of beacons lapping at the darkness." The doctors can be justly proud of an apostolic succession which comes down to them from Hippocrates. Schools and systems of medicine have risen, flourished and disappeared but medicine itself, embedded in the luxuriant, life-giving soil of science must go on growing, expanding and developing so long as humanity is weak, and organs fail, and bacteria multiply.

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SIMULTANEOUS BILATERAL OPERATIVE REMOVAL OF RENAL AND URETERAL CALCULI

Report of a Case

LOUIS D. SMITH, B.S., M.D., F.A.C.S.

CHICAGO

The choice of operative attack in bilateral renal and ureteral calculi still meets with no unanimity among urologists. Authorities of renown array themselves equally on either side of the fence, some advocating attack on the better functioning kidney first; others are for operating on the poorer side first. All admit circumstances may arise in individuals which would make each a case unto itself.

The incidence of simultaneous bilateral lithiasis is estimated as being nine to fourteen per cent. of urinary calculi. At post mortem, as much as fifty per cent. was found to be bilateral. It is strange that the discussions of simultaneous

bilateral operative attack have been so meager. Blum¹ in 1923 was the first to recommend it. He performed the operation in eight cases up to 1930. Stevens,² although he believes the simultaneous operation is hazardous, can find no objection to the procedure if the stones are small and easily reached by ureterotomy or pyelotomy, and the patient's general condition and renal functional tests are good. He had thirty-three cases of bilateral stone in which he did simultaneous bilateral removal in three cases without a death. One of these three was a case of anuria due to bilateral ureteral stone in which the non-protein nitrogen was 107 mgm. per 100 c.c. of blood and the creatinin 4.5 mgm. The removal of the calculi was followed by almost immediate restoration of the urinary flow. Twinem³ reported one case of simultaneous bilateral operation performed with the patient lying face down on the table. Fedoroff⁴ favors the one step operation only in case of anuria or blocking of both sides, or when it is impossible to diagnose the location and site of blocking. He does not report any personal cases. Four cases were reported by Leschnew and Levant,⁵ one case each by Tenani,⁶ Mamikonoff⁷ and Lobmeyer,⁸ and two each by Frangenheim⁹ and Dziembowski.¹⁰ Küemmel is quoted by Mamikonoff⁷ as favoring the simultaneous operation but reports none for him. Swift Joly¹¹ says that in case of bilateral aseptic stone, small and single, if the renal functions are approximately equal, simultaneous removal is advisable, unless the stone on one side is high up and on the other low in the ureter. In the latter type of case, the operation may be too prolonged for safety. In calculous anuria he advises being prepared to operate on both sides at one sitting if the first kidney appears to be obviously too greatly damaged to carry on. He reports no cases.

Hryntschak,¹² who reported seven personal cases, believes bilateral simultaneous operation is contraindicated in 1. aseptic cases when the stones are so small as to be expellable, 2. when they are fixed in the calyces and are "silent," 3. when they are the large, stag-horn type, unless there is diminishing function, in which case he performs a bilateral nephrostomy, and 4. when they are so numerous that the chances for complete removal are nil. He believes the simultaneous bilateral operation is indicated in infected cases because of the progressive destruc-

tion of the renal parenchyma which infection induces. He found in the literature up to 1932 only 26 cases, including his own.

The reported cases to date then total 30, including the three of Stevens² and one of Twinem.³ There was no fatality in all these cases. The types of operations performed were bilateral ureterotomy, pyelotomy and nephrotomy, pyelotomy and ureterotomy, pyelotomy and nephrectomy, pyelotomy and nephrostomy, pyelonephrostomy and nephrectomy, nephrotomy and nephrectomy, pyelotomy and pyelonephrotomy. In one case of Hryntschak¹² a bilateral ureterotomy was done in a horse shoe kidney.

The advantages of the bilateral simultaneous operation in properly selected cases are: 1. Both kidneys are at once freed of stone, infection and further damage. 2. The patient is subjected to only one operation, thus eliminating the fear of twice going through the ordeal that such operations entail. 3. Convalescence is shortened and, therefore, expense and disability are diminished. 4. It is apparently safer than the two-stage operation, as witness in the latter method the figures of Israel with a mortality of 2.25 per cent., Mayo's, 0.6 per cent; Fedoroff, 10 per cent, Stevens with no deaths in the one-stage in three cases and five deaths in thirty cases when the two-stage operation had been done. 5. Local post-operative treatment can be instituted earlier on both sides. 6. Elimination of the possibility of obstruction and further damage on the side not operated on while awaiting recovery from the first operation. The disadvantage of the simultaneous bilateral operation is the length of time consumed, which consideration, however, must be negated since there has been no mortality and less morbidity.

With the decision for a simultaneous bilateral operation made, the attack should be begun on the clean side, but if both are aseptic or if, as is usual, both sides are infected, operate first on the side which is amenable to the more conservative treatment; for example, a ureterotomy or pyelotomy when the other side may require a nephrotomy or nephrectomy. But when one side is definitely obstructed, as evidenced by subjective and objective findings, the indication is to begin on the obstructed side. Such a situation would occur with a stone lodged in the ureter on one side (a stone in the ureter is more apt to block) and in the renal pelvis on the

other. The reason is obvious—it may be deemed advisable not to proceed with the other side because of the time consumed and decline in the patient's condition.

I wish to add the following personal case:

B. S. a steel worker, aged 44 years, referred by Dr. H. B. Colver, entered the South Chicago Community Hospital September 17, 1934, with the following complaint: Pain on the right side, eight years duration, and on the left side, seven years duration. He was perfectly well until eight years ago, when during work he was seized with an attack of excruciating, colicky pain in the right kidney region radiating to the scrotum. He was hospitalized and a diagnosis of appendicitis was made. The pain lasted for three days. He refused operation. Six months later, he had a similar attack lasting a few hours but less severe than the first. A year later he had an attack on the left side. These attacks were accompanied by vomiting but at no time was blood seen in the urine. In the past year the attacks increased in frequency, often at intervals of two weeks, but never accompanied by gross hematuria. After each attack he believed he passed larger quantities of urine than was usual. During the past year he has had constant aches in both kidney regions, making it almost impossible for him to work. In the last eight months he lost thirty-five pounds in weight. For the past two years he has had frequency of urination, occasional burning and often attacks of vomiting.

The physical examination revealed a man six feet tall, who despite an apparent considerable loss of



Fig. 1—Intravenous urogram. Stone in lower right ureter and in upper left enclosed in shadowgraph medium. Right and left sides are reversed.

weight, appeared in good condition. Examination by systems revealed nothing abnormal. The blood pressure was 120/88. There was marked tenderness over both kidney regions in the back. Deep pressure just below McBurney's point caused him to wince. There was some rigidity at this point.

Laboratory data: Wassermann and Kahn tests negative. Blood: non-protein nitrogen: 31.6 mgm. per 100 c.c. Red cells: 4,360,000. Hemoglobin: 70%. White cells: 10,300, of which 71% were neutrophils. The urine was alkaline in reaction, 1.008 specific gravity, no albumin, no sugar, occasional red cell and many pus cells.

X-ray: A flat picture showed on the right side a shadow $\frac{1}{2} \times \frac{3}{8}$ inch, low in the ureter, and another in the left ureter $\frac{3}{8}$ inch in diameter on a level with the transverse process of the third lumbar vertebra. Excretion urography showed the shadow on the left

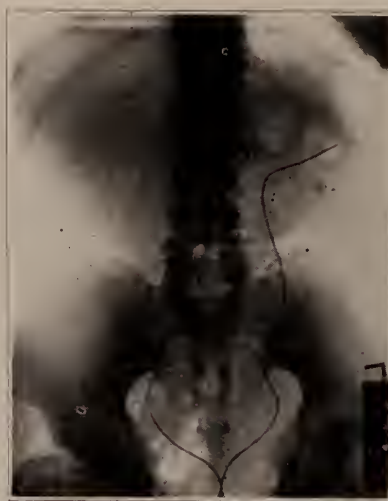


Fig. 2—Catheter in contact with stone in lower right ureter. The left sided stone was pushed into the left lower calyx by the catheter.

side to be enclosed in the medium present in the ureter with a noticeable bulging of the latter at the site of the stone. The right ureter was not visualized. The pelves and calyces showed some evidence of dilatation. The catheter introduced on the right side met with some obstruction but was successfully passed slightly beyond the stone. Stereoscopically, the catheter and stone were in the same plane. On the left side, the catheter met with an obstruction at about 25 cm. The picture showed the stone to have been pushed into the inferior calyx. Retrograde and excretion urography were identical excepting the dislocation of the stone on the left side as a result of catheterization.

The urine from both kidneys showed many pus cells and occasionally red cells. Phthalein administered intravenously appeared in $5\frac{1}{2}$ minutes on the right side and four minutes on the left. In the first fifteen minutes, 10 per cent was recovered on the right side and 12 per cent on the left.

The advantages and disadvantages of the simultaneous bilateral operation were explained to the patient, who then eagerly consented to it. The operation was performed September 18, 1934, employing avertin rectally, 90 mgm. dose. This was supplemented by a small amount of ether. With the patient in the Trendelenburg position, the stone in the right ureter was attacked first by an ilio-inguinal muscle splitting,

extra-peritoneal approach. The stone was located about 1 cm. above the bladder wall. The ureter was enlarged and thickened, being the size of a lead pencil. The ureter was opened and the stone removed, no attempt being made to suture the incision. A gutta percha drain was introduced to the opening in the ureter. Closure was made and the patient then turned on his right side in the regular kidney position and a left oblique lumbar incision was made. It was difficult to deliver the kidney, so it was thought advisable to do a nephrotomy over the convexity of the kidney in the region of the inferior calyx. The stone was easily removed and a gutta percha drain introduced into the pelvis. Two mattress sutures were taken into the kidney substance. There was a moderate amount of bleeding. Closure was made in layers. The duration of both operations was one hour and twenty minutes. The patient's condition was excellent throughout. Convalescence was fairly smooth. Emesis developed on the second day, but was corrected by the introduction of a Levine tube with lavage. The patient left the hospital cured on October 5, 1934, seventeen days after the operation. Excretory urograms were taken two months later and showed no change in the size of the pelvis and calyces on the right side, but on the left the damage done by the nephrotomy was visualized. Examination of the stones by the National Pathological Laboratory revealed them to be calcium carbonate with no other constituents.

185 North Wabash Avenue.

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INTESTINAL OBSTRUCTION

FREDERICK CHRISTOPHER, M.D., F.A.C.S.

Associate Professor of Surgery, Northwestern University Medical School; Chief Surgeon, Evanston (Illinois) Hospital.

EVANSTON, ILLINOIS

The mortality of intestinal obstruction ranges between 45 to 50 per cent. This figure has remained virtually unchanged for thirty-five years despite careful study of the condition and the advances made in the field of surgery generally.¹ Improvement in the mortality figures cannot be hoped for until the incidence of early diagnosis

is more common. The early diagnosis is often difficult and the decision to advise operation in a patient who does not appear gravely ill is often even more perplexing. It is the purpose of this paper to emphasize some of the factors concerned in the early diagnosis of intestinal obstruction.

Intestinal obstruction may be acute or chronic; it may be simple or strangulated; it may be high in the intestinal tract or it may be low; it may be due to mechanical causes, nervous imbalance, or to vascular obstruction. The commonest causes are adhesions and strangulated external hernia. Most of the cases due to adhesions are the result of postoperative adhesions although in 6 per cent of McIver's² cases the obstruction was due to adhesions in individuals on whom there had been no previous operation.

Other common causes are neoplasms, intussusception, volvulus, and mesenteric thrombosis. Uncommon causes are obturation of the intestinal lumen by gall stones, stricture of the lumen or narrowing from without, internal hernia, Meckel's diverticulum, apertures in the mesentery, failure of rotation of the gut or abnormal fixation.

The history sometimes gives a clue to the diagnosis. Previous operation suggests adhesions; existence of a hernia points to possible strangulation; cachexia suggests neoplasm; cholelithiasis may be a precursor of obturation.

By all odds the most important symptom of intestinal obstruction is *pain*. The pain is severe, intermittent, periodic and crampy. The interval between the heights of pain may be three to fifteen minutes. During the severest pain the patient will "double up" or change position and may perspire.

Accompanying the pain there is *nausea* or *vomiting*. In the early stages nausea alone is present. The diagnosis of intestinal obstruction should be made long before the occurrence of fecal vomiting.

Third in order of importance of the diagnostic aids is the "*flat*" *x-ray plate*. Often, but not always, valuable information will be obtained from a large x-ray film of the patient's abdomen. The patient should be lying down while the film is made. Normally gas is usually seen only in the colon or stomach. Gas in the small bowel should arouse suspicion. The entire small bowel may be enormously distended with gas (Fig. 1) or there may be merely conspicuous large-sized

¹Read before the Evans'or Branch of the Chicago Medical Society, March 7, 1934.

pockets. (Fig. 2.) The small bowel is recognized by the absence of haustral markings and the presence of the shadows of valvulae conniventes.

Fourth, the stethoscope will disclose loud intestinal noises which occur at the *height* of pain. Greene³ has pointed out that in the pain of food poisoning and other colics the maximum sounds do not coincide with the height of the patient's pain.

Fifth, there may be visible peristalsis.

Sixth is the paucity of abdominal signs in the early case. There is generally no tenderness or rigidity. There is no rebound tenderness, and no distension. Unless there is an intussusception, neoplasm or external hernia there are no masses. There is usually absence of fever, leucocytosis, and increase in the pulse rate. There is no alter-

erally establish the diagnosis. Acute appendicitis, acute pancreatitis, acute cholecystitis, cholelithiasis and perforated ulcer are rarely confusing.

Owen Wangensteen⁴ has clarified the nature of the treatment. In intestinal obstruction due to



Fig. 1. "Flat plate" of intestinal obstruction. Note loops of small intestine enormously distended with gas.

ation of the blood chemistry and no dehydration. And, finally, and most important, *there may be passage of gas and feces from the unaffected bowel distal to the obstruction* after an enema. Morphine will mask the symptoms and give false security.

When the obstruction is of long standing (24 to 48 hours) the patient will have abdominal distension, fecal vomiting, obstipation, peritoneal irritation from the presence of free hemorrhagic fluid, and, in high obstruction, a decrease in chlorides and an increase in the alkali reserve and non-protein nitrogen. Only in chronic intestinal obstruction will the barium by mouth be advisable.

In the differential diagnosis strangulation of an ovarian cyst will sometimes have to be considered in the female. Pelvic examination will gen-



Fig. 2. "Flat plate" of intestinal obstruction. Note single loop of distended small intestine. Obstruction in pelvis found at operation.

hernia, volvulus, mesenteric thrombosis, and anomalies in the development of the gut, early operation is demanded. In intussusception an attempt at reduction by giving a barium enema may be made and if this fails immediate operation should be carried out. Patients in a state of shock or dehydration should be first given fluids or a blood transfusion. In the very ill patient if the cause of obstruction is not immediately evident, it may be necessary to be content with an aseptic Hendon type enterostomy in the principal visible distended loop of bowel. Where at all possible the obstruction should be eradicated. In case of obstruction due to adhesions and bands a preliminary treatment with the Wangensteen suction will usually be advisable. In some of these cases the obstruction may subside and operation will be unnecessary. In paralytic ileus suction alone will generally accomplish a cure. In the case of neoplasms, excepting those of the descending colon, operation should be preceded by a period of suction. Definitely necrotic bowel should be resected. The criteria for viability of bowel are 1. return of normal color with hot compresses, 2. contractility with stimulus and 3. intact shiny serosa.

The mainstays of the postoperative treatment are the employment of the Wangensteen suction

apparatus, intravenous 10 per cent. dextrose Ringer's solution, and morphine.

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Legends—

LEUKOPLAKIA ORALIS

CASPER M. EPSTEIN, M.D., D.D.S.
CHICAGO

Leukoplakia of the oral cavity is not a new subject but because of its clinical significance it has become a most important one.

The terminology of this disease entity has been varied and confusing. Leukoplakia buccalis, in the strictest sense of the word, refers to the presence of the lesion on the buccal mucosa; labialis indicates its involvement of the lip; lingualis, of the tongue, etc. Prinz of Philadelphia has used a term similar to that used by the writer to include every part of the oral cavity, namely, leukoplakia oris.

The mere fact that the patient has never noticed the lesion until a short time previous, when there was a burning sensation and some acute pain, especially with hot and spicy foods, is no criterion that the condition has just presented itself. As a matter of fact, the disease has probably been present for some time, perhaps weeks or even months, because *leukoplakia is very chronic*. We know from the many studies of cancer by Bloodgood, Cheatle, Faillia, Quick, et al., that cancer usually does not begin as cancer, but rather begins in a lesion that is not cancerous. This lesion at first is composed of a group of cells which by virtue of some form of chronic irritation, have increased their number. If this is true, and we know that leukoplakia is an hypertrophy of the epithelium of the oral mucosa, then we are correct in assuming that leukoplakia is a precancerous lesion.

Bazin in 1866, was apparently the first one to describe leukoplakia with any degree of thoroughness. It was the consensus of opinion at that time that syphilis was the underlying factor, although we know today that many cases of leukoplakia give no history whatsoever of lues,

a negative Wassermann reaction, and no other manifestations of specific infection. This does not, however, mean that syphilis is in no way related to leukoplakia. On the contrary, opinion is divided on this question. Some investigators believe that without syphilis there can be no leukoplakia. Others are more liberal, and their contention is that about 30 per cent. of leukoplakias are syphilitic and the other 70 per cent. of the cases are not. Nevertheless, when a case of leukoplakia oralis presents itself, we must make every possible effort to determine whether or not a specific infection is present or whether or not the patient has had lues at some time or other in his life. The writer fully agrees with De Forrest and Hoase when they state that: "Where syphilis exists, it is probably true that less smoking (or for that matter any other chronic irritant) is necessary to develop leukoplakia."

Chronic irritation plays an important role as an etiologic factor in the development of this disease. It may take the form of ill-fitting arti-



Fig. 1. Very often in the early stages of the disease may be seen an hyperplasia of the lining squamous cells. They are well outlined and usually show no variation in size, shape, or staining qualities. In some sections extension into the deeper layers can be seen with definite evidence of keratinization.

ficial restorations with their attendant sharp edges, or broken down carious teeth with ragged margins. Ill-fitting artificial restorations do not limit themselves to bridges and dentures. Badly fitting crowns, broken inlays and amalgams, and

poorly fitting silicate restorations come under this heading.

Excessive smoking and the use of chewing tobacco or snuff, together with poor oral hygiene, will very frequently produce a leukoplakic patch, which, if subjected to further irritation for any length of time, will, in the majority of cases, produce cancer. In all cases seen by the writer, tobacco was a very important etiologic agent.

Because of its underlying causes according to our present knowledge, leukoplakia is seen to a much greater extent in men than in women. And for this same reason it is seldom seen before the age of thirty-five, increasing in direct proportion as the age of the patient advances.

As a rule, the most common site of occurrence of these patches is on the tongue, either the dorsum or the lateral edges, followed in order of frequency by the buccal mucosa, lips, gingivae, and palate.

The writer recently examined a patient who complained of a burning sensation on the left buccal mucosa just below the opening of the parotid duct. He was a heavy cigar smoker and was told to discontinue the use of tobacco entirely. Contrary to this advice he persisted in smoking and applied irritants locally, and in two weeks his entire mouth was covered with leukoplakic patches, including the gingivae and palate. This is rather unusual, but it illustrates the effects of irritants in this disease.

The author cannot agree with other writers on this subject that the excessive use of alcohol highly seasoned and very hot foods, and gastrointestinal disturbances have any direct influence in the *causation* of leukoplakia. The rationale is quite imperceptible. The excessive use of alcohol may lower general resistance, but why should it have any more influence in producing leukoplakia than in producing naevi or diabetes mellitus? When highly seasoned or very hot foods are taken into the mouth they do not have a definite predilection for any one particular spot in the mouth, and usually they are not kept in the mouth long enough to produce any degree of irritation. But where leukoplakia, or any other form of chronic irritation already

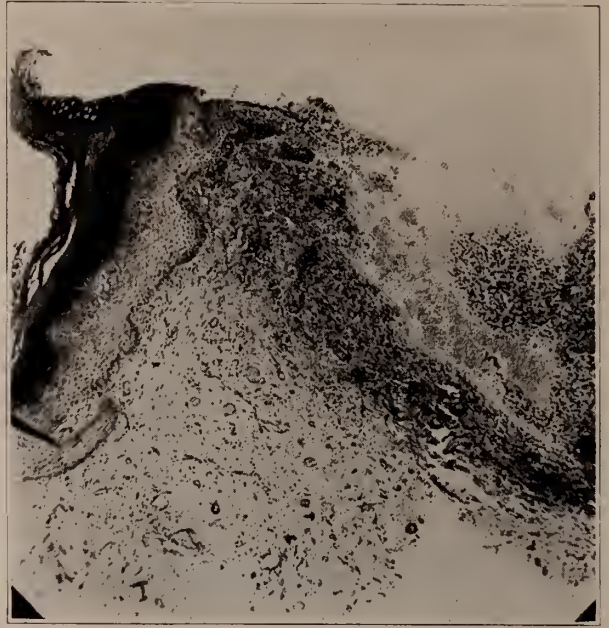


Fig. 2 (a)

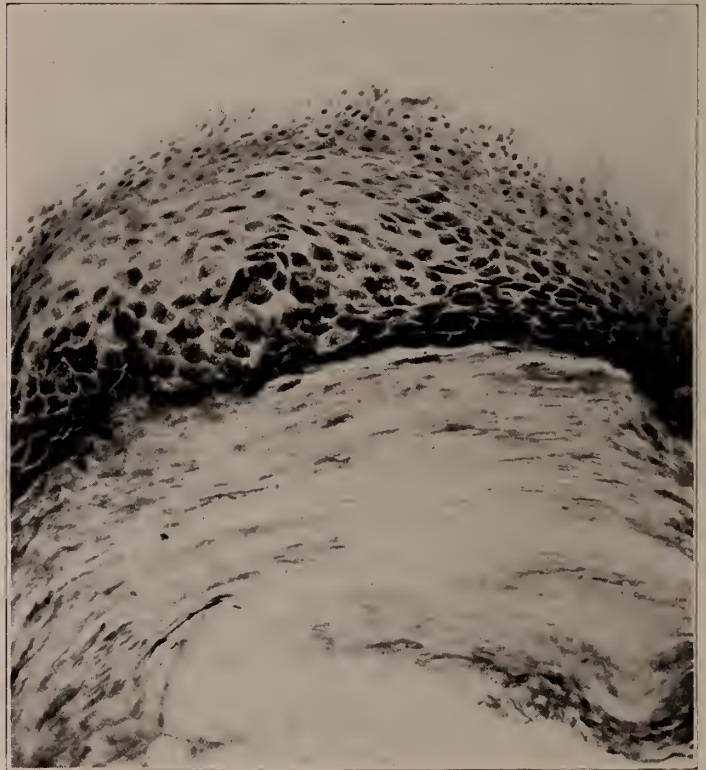


Fig. 2 (b). These sections reveal a small portion of loose connective tissue with many newly formed small sized blood vessels, infiltrations of many lymphocytes and evidence of much blood pigment. There is also evidence of an hyperplasia of squamous cells with hyperkeratosis.

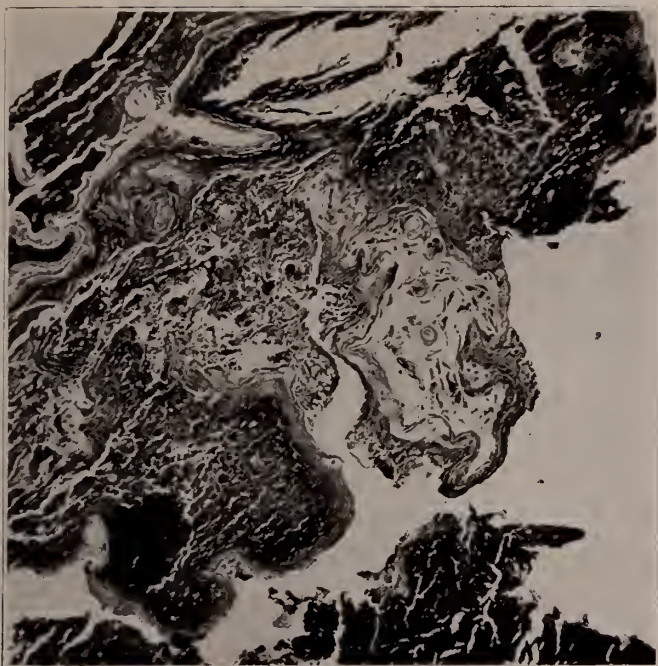


Fig. 3. This section reveals an alteration of the cornified layers with keratinization.



Fig. 4. Showing the milky white patch with a cord-like lesion. The lesions are noted to be definitely demarcated and irregular in form.

exists in the mouth, the use of alcohol must be forbidden and no very hot or highly seasoned foods should be taken into the mouth, because at this time it is quite evident how they can irritate an already irritated area.

Microscopically, the process is essentially one of hyperkeratosis of the horny layer of the mucous membrane, together with a marked thickening of the superficial layers. The transitional epithelium seen in normal mucous membranes is replaced by a multi-layered coating of stratified squamous epithelium. Superficially, varying degrees of keratinization appear, consisting of a cornification and thickening of the epithelium. In some places there may be an obliteration of the papillae, but more frequently there is an exaggeration of the interpapillary epithelial processes. (Fig. 1.) Zeigler explains the malignant transformation of leukoplakia as follows: "Epithelial metaplasia occurs most frequently in chronically inflamed mucous membrane. The change takes place in the following manner: after repeated loss of the original epithelium, the regenerating epithelium changes its character."

Mekie describes the pathology of leukoplakia as the following variations from normal: at first there is an edema of the sub-epithelial layer, infiltration with lymphocytes, and increase vascularity. (Fig. 2.) Later is noted an irregularity of the basal cell layer and sometimes active mitosis is evident. Somewhat later the middle stratum of the epithelium is increased and finally in the more advanced lesion there is an alteration of the cornified layers with hyperkeratinization. (Fig. 3.)

Clinically, the disease may go unrecognized until the later stages. As a rule, no symptoms are noted in the first stage, but later the patient may seek relief because of a burning sensation of the tongue or cheek. At first there are seen pale red, confluent lentil-to-pea sized, cordlike lesions. Later, these become glistening and milky white, sharply outlined, irregular in form and usually surrounded by a narrow red areola. (Fig.

4.) In the premalignant stage the plaques and usually surrounded by a narrow red areola. (Fig. 4.) In the premalignant stage the plaques are usually thick, white or yellowish, and the surface is confluent and covered with bloody rhagades and suppurating erosions. It is at this period that there is usually pain in taking hot or highly spiced foods. At first the spots are flat and smooth. Later they become raised, irregular, and very hard.

When leukoplakia involves the lingual mucosa, the affected surface appears as though it is covered with hard, tough strips of white solid skin. It is in this type that movements of the tongue become impeded and the speech takes on definite thickness.

The presence of cracking, fissuring, and ulceration usually means malignant degeneration.

The most important clinical feature of leukoplakia is its predilection to malignant degeneration. This statement is not to be construed as meaning that *all* such lesions become malignant. On the contrary—the simple smooth patches are not dangerous but must be watched very carefully. Again, some areas that look angry and inflamed may disappear upon the removal of all irritating factors. On the other hand, a patch that appears innocent may very possibly be the precursor of carcinoma.

Whenever an apparently innocent patch of leukoplakia that has been carefully observed shows evidence of activity, the lesion should be immediately destroyed.

The prognosis of all cases of leukoplakia depends largely upon the stage of discovery or recognition, whether or not there had been continued irritation after the diagnosis had been made, and the type and diligence of the therapy instituted.

From a therapeutic standpoint it is unquestionably accepted that correctly instituted prophylactic measures, the complete elimination of etiologic factors, and oral hygiene are of prime importance. The use of tobacco must be absolutely and uncompromisingly prohibited if favorable results are to be expected. The writer believes and very definitely feels that there should be no "pussyfooting" or hedging about informing the patient of the possible consequences of this disease. If results are to be expected there must be absolute and perfect co-operation between doctor and patient. Recently

the author was consulted by a patient because of a pain in his mandible. Examination revealed an impacted third molar, which, when removed, cured the condition. But on closer examination a patch of leukoplakia buccalis was discovered. The patient, who smoked between forty and sixty cigarettes a day, was informed in no uncertain terms of the possibilities of neglecting this condition. He returned to his own physician, who had referred him, and the following day the writer learned how perturbed and annoyed was his doctor because his patient had been told the truth. Campaigns have been instituted to acquaint the public with the truth about cancer and to help prevent it. But without the help and aid of the medical and dental professions these campaigns might just as well have not been started.

If syphilis is present, there is no question about the institution of proper antiluetic therapy. This does not mean that antiluetic treatment will cure leukoplakia. Sometimes it may even aggravate the condition when the overuse of bismuth or mercury produces stomatitis. This must be especially watched for.

The correction of ill-fitting dentures, crowns, bridges and other artificial restorations is imperative. All caries must be cared for and the sharp edges of all teeth must be smoothed down. Very hot and acidic foods and liquids, condiments and spices, and alcoholic drinks are prohibited.

The application of caustic drugs to the lesion is *absolutely forbidden*. This is a most pernicious form of treatment and must not be tolerated. As a matter of fact, in many instances such therapy, if it can be called such, merely helps to produce a malignant degeneration.

The rationale of active treatment is *destruction* of the patch and *not stimulation* because the latter will only tend to produce cancer. From this statement it is evident that the stimulating ultra-violet rays of the quartz lamp are *contraindicated* and will produce results directly opposite to that which is desired.

X-ray therapy usually produces excellent results, but the disadvantage of this form of therapy is the difficulty, if not impossibility, of obtaining the proper applicators for intra-oral use. And because of this roentgen impracticability, radium has found wide favor. When using the latter, applicators may be made for any lesion anywhere in the mouth and the destructive beta

and gamma rays applied. Zeisler believes that roentgen rays should not be used on the lip because the mucosa of the lip has an inherent sensitiveness to these rays and because of this extreme delicacy it is very difficult to measure dosage. Apparently correct doses are either too small to be effective or so large that they produce a necrosis or burn and sometimes instigate malignant degeneration. Some men believe in the radical removal of the patch surgically and replacement by means of a graft or flap. The writer cannot subscribe to such treatment as being the best. It may suffice in very small patches, but it certainly is not the procedure of choice nor the method of treatment to be recommended in all cases. Destruction of the lesion or lesions by electrocoagulation and the actual cautery have given the author excellent results.

This operation requires no special training other than that which is received by every doctor who graduates from an accredited school and hospital. This method, if properly done, destroys the lesion quickly and definitely with little or no discomfort to the patient. For this procedure local anesthesia is preferred.

Arsenicals and copper in various forms and combinations have been advocated by some men, with their report of favorable results. Parathyroid extract in doses of 1/10 grain and more have been prescribed. From the experience of the writer these drugs have had no effect whatsoever on the leukoplakic lesions.

CONCLUSION

From what has been said above it is quite evident that leukoplakia oralis is an intensely chronic and painless inflammation of the mucous membrane of the mouth at its onset, with a tendency towards malignant degeneration. Undoubtedly the most important etiologic factors include the use of tobacco, bad teeth and poor dentistry, and syphilis. These may act singly or more often in combination with each other or with other irritants. In its treatment, oral hygiene and correction of any dental irregularities, together with absolute prohibition of the use of tobacco is imperative. Actively destructive measures must be used to destroy the patch or patches. And finally, the use of caustic drugs is vehemently condemned as a most pernicious form of treatment.

Cancer of the mouth can be reduced materially if closer attention is paid to what is in

the mouth and the proper treatment instituted.
25 East Washington Street.

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A SKIN TEST FOR DIAGNOSIS OF GONOCOCCUS INFECTIONS

Preliminary Report

BUDD C. CORBUS, M. D., F. A. C. S.,
CHICAGO

Clark, Ferry and Steele,¹ in their original paper on "Studies of the Properties of a Bouillon Filtrate of the Gonococcus," state in part the following. "The sterile bouillon filtrate from young cultures contains an extracellular toxin in sufficient concentration to give positive skin reactions in dilutions of 1-1000 to 1-1500."

As gonococcus infections in man are still the most common of all the infectious diseases and at times the most difficult to diagnose, it is the author's opinion that a specific skin test for the presence of the gonococcus should prove a valuable addition to our diagnostic armamentarium.

With the foregoing in mind and stimulated by knowledge of intracutaneous tests in the diagnosis of allergic conditions, it appears promising that a similar reaction might be obtained in Neisserian infections by using this filtrate of Clark, Ferry and Steele, now known as Gonococcus Filtrate, Corbus-Ferry.

In order to definitely prove that the body is sensitized during gonococcal infections and that it is capable of giving an allergic response to the gonococcus protein contained in the gonococcus bouillon filtrate, when injected intradermally, the following experiments were carried out:

Experiment 1. A normal individual was injected intracutaneously with 0.15 cc. of the standard (Corbus-Ferry) filtrate. Below the site of

¹Presented before the Chicago Urological Society, March 28, 1935.

the first injection 0.15 cc. of the culture media used in growing the gonococcus was injected as control.

Interpretation. Twenty-four hours later no reaction indicative of an allergic response was present. Only the usual response to the specific toxin is noted. The control is negative to both the allergic and toxin response.

Experiment 2. Control for passive transfer of allergic condition. Normal individual was given two intracutaneous injections several inches apart with 0.15 cc. serum respectively from another normal individual. Forty-eight hours later these areas were again injected separately and respectively with the (Corbus-Ferry) filtrate and the bouillon culture media.

Interpretation. Twenty-four hours later no reaction indicative of an allergic response was present. Only the response to the specific toxin as in Experiment 1.

Experiment 3. Suspected individual was injected intracutaneously with 0.15 cc. of the (Corbus-Ferry) filtrate. Below this injection 0.15 cc. of the culture media was injected as a control. In twenty-four hours at the site of the injection of the filtrate there appeared a well defined, edematous and indurated wheal, measuring 5 cm. in diameter. Control reaction negative.

Interpretation. Marked positive response to the gonococcus filtrate larger than any toxin response ever noticed in normal individuals was noted. This response, in all probability, is mostly allergic and is combined with the usual toxin response.

Experiment 4. Passive allergic transfer. The serum used was obtained from a patient having an infection, the duration of which was forty-eight hours. A normal individual was injected with 0.15 cc. of this serum in the above mentioned respective places. Forty-eight hours later the former procedure of injecting filtrate and culture media was repeated. Twenty-four hours later there appeared at the site of the filtrate injection a well defined wheal, coupled with an entirely negative response at the site of the control.

Interpretation. As this reaction is larger than the ordinary toxin reaction, similar to the reaction in Experiment 3, it is considered a positive passive allergic transfer. The reaction, as

in Experiment 3, is combined with the toxin reaction. The control was negative.

Experiment 5. Passive allergic transfer from an individual with an infection of longer duration.

The serum used was from a patient having G. C. infection, the duration of which was approximately one month. Normal individual was injected in two sites as in previous experiments with 0.15 cc. of the above patient's serum. After forty-eight hours the usual sites were injected with filtrate and culture media. Twenty-four hours later there appeared at the site of the filtrate injection a large wheal 5 cm. in diameter, and a negative reaction at the site of the control.

Interpretation. This is again considered a positive passive transfer of the allergic condition.

Experiment 6. To further evaluate this test a passive transfer was obtained with serum from a patient apparently recovered from an infection which occurred six years ago. The response was identical to that in Experiment 1.

DISCUSSION

In order to ascertain how long after a patient cured of G. C. will give a cutaneous allergic response further investigation will have to be made.

It is to be noted that throughout these experiments a uniform dosage of 0.15 cc. was employed. This, however, is in excess of the usual amount requisite to demonstrate allergic conditions. Experimentation is now being carried out to ascertain the size dose which will suffice.

From the foregoing experiments it is evident that the specific exotoxin present in the bouillon (Corbus-Ferry) filtrate is present in sufficient quantities to obscure the true allergic reaction that is present in individuals infected with the gonococcus. It has already been pointed out by Clark, Ferry and Steele, that a large percentage of normal individuals give cutaneous reactions when injected with dilutions as low as 1-1500. This precludes its use as a specific diagnostic skin test for gonococcus infections. With this added information in mind, the bouillon (Corbus-Ferry) filtrate was detoxified by fractional heating and the following experiments performed, using 0.1 cc. instead of 0.15 cc.

Experiment 7. Normal individual was in-

jected intracutaneously with 0.1 cc. of the standard (Corbus-Ferry) filtrate. Below the site of the first injection 0.1 cc. of the detoxified standard (Corbus-Ferry) filtrate was injected intracutaneously, and immediately below this a second intracutaneous injection of 0.1 cc. of the detoxified standard (Corbus-Ferry) filtrate was also made. However, the filtrate used here was heated twice as long as that used in the injection immediately above.

Interpretation. Twenty-four hours later the first injection of standard (Corbus-Ferry) filtrate shows the typical cutaneous response as in normal individuals. The second injection of slightly detoxified filtrate shows a faintly typical cutaneous response as in normal individuals. The third injection of completely detoxified filtrate shows a negative cutaneous response.

Experiment 8. Individual infected with gonococcus, the duration of the infection being five days, was injected intracutaneously with 0.1 cc. of the completely detoxified (Corbus-Ferry) filtrate, and immediately below the former 0.1 cc. of culture media was injected intracutaneously as a control.

Interpretation. As early as eighteen hours after the intracutaneous injection of the detoxi-

(Corbus-Ferry) filtrate for the cure of his infection. Immediately below the site of the former he was injected intradermally with 0.1 cc. of the detoxified filtrate.

Interpretation. Twenty-four hours later usual response at site of intradermal injection in infected individual is noted. Immediately below this was a response to the detoxified filtrate.

This shows that the standard (Corbus-Ferry) filtrate is capable of being detoxified and that there still remains a specific protein capable of eliciting a cutaneous response in allergic individuals.

Experiment 10. Two girls aged eight and ten years, infected with the gonococcus for five months, gram stain positive, were each injected intracutaneously with 0.1 cc. of the detoxified filtrate. Two normal, non-infected boys aged twelve and thirteen, were injected intracutaneously with 0.1 cc. of the detoxified (Corbus-Ferry) toxin. Each child was also injected below the site of the former injections with 0.1 cc. of the culture media.

Interpretation. Twenty-four hours later marked positive response to the detoxified filtrate in both little girls is noted. There was a negative response to the culture media.

There was a negative response to the detoxified filtrate in both little boys, and also a negative response to the culture media.

As early as September, 1934, we began to make diagnostic intracutaneous tests in the Social Hygiene Clinic of Evanston, under the direction of Dr. J. D. Croft, to whom I am greatly indebted.

As a large number of the "clinic" patients were colored, it was difficult to evaluate the cutaneous response, but they served the purpose of confirming our belief that an allergic reaction could be elicited if a proper antigen was used.

The balance of the material used here is from the services of Dr. Frederick Tice and Dr. Don Sutton at Cook County Hospital, and the private practice of Dr. V. J. O'Connor and myself. Over eighty-five cases have been subjected to the cutaneous test.

CONCLUSIONS

From my experience it appears that in individuals with either negative or positive histories of gonorrheal infection, a positive allergic reac-



Fig. 1. Illustrating the skin test for gonococcal infections.

A. (upper area): Typical cutaneous reaction following injection of 1/10 cc. of detoxified (Corbus-Ferry) bouillon filtrate.

B. (immediately below): Typical result of the injection of 1/10 cc. of culture media used as control.

fied (Corbus-Ferry) filtrate, there appeared a typical cutaneous response measuring 1.5 cm. The control was negative. (Figure 1.)

Experiment 9. Individual infected with the gonococcus, the duration of which was four weeks. Patient under treatment was given the usual weekly intradermal injection of standard

tion with detoxified gonococcus filtrate, Corbus-Ferry, is evidence of Neisserian infection.

It also appears that this allergic condition may be passively transferred to a normal individual even as early as forty-eight hours after the onset of the infection.

It is likely that this allergic condition remains constant for the duration of the infection. It is also possible that this skin test will have further value in determining when a given patient is cured of the infection.

55 E. Washington Street.

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A REVIEW OF BLOOD AND SPINAL FLUID REPORTS

F. W. SOKOLOWSKI, M. D.
ALTON, ILL.

The laboratory reports on the blood and spinal fluids over a period of three years reveal some interesting points. The tests performed were the Kahn precipitation test and the colloidal gold curve. Errors which may have occurred in the laboratory are not taken into consideration.

These tests are made routinely on all first admissions; blood tests are made on readmissions, and spinal fluid tests whenever there may be some indication for them. Re-examinations of blood and spinal fluid are also made when there is any doubt about the first or second reports.

From January, 1932, to and including December, 1934, 1,375 blood and 817 spinal fluids were examined. Of these 227 bloods and 153 spinals were from one to four plus, and the Colloidal gold curves varied from 5555555442 to 1111000000. Seventy of the blood examinations were one and two plus, forty of these had a one to four plus spinal fluid with a positive colloidal gold curve. Fourteen blood examinations were negative having a spinal from one to four plus with various gold curves as shown in the following table:

Blood	Spinal	Colloidal Gold Curve
0	++++	555554221
0	++	5555422000
0	++	5555420000
0	++++	5554433200
0	++++	5554432100
0	+	4444332000
0	++	4443332100
0	++++	4433322210
0	++	4433321000

0	++	2222220000
0	++++	2222111000
0	++++	1112332200
0	++	1112220000
0	++++	111210000

In 1931 a case of chronic alcoholism had a colloidal gold curve of 5432210000. The examination was repeated one week later and the curve was 1112211000. There have been several other cases with meningeal curves in the absence of clinical findings other than of a psychiatric nature.

One case had negative laboratory tests with a positive history and clinical findings. This is one of the so-called "burned out" cases of neurosyphilis.¹

Case 5633. Male, white, married, age 49. Admitted June 15, 1932. Family history inadequate. Madison County Hygiene Clinic report states that the family came to their attention when one of the patient's daughters was brought in for observation and was found to have congenital syphilis. The laboratory reports on the parents and two daughters were four plus. The remainder of the children have been consistently negative. In 1926 the patient was admitted to the Clinic with the diagnosis of "Latent Syphilis" with a history of 15 years' standing. He had received a maximum amount of antiluetic treatment.

He was admitted to this Institution because he developed paranoid ideas directed against his wife.

Neurological Findings: Neurological examination revealed pupils equal and round, reacting to light and accommodation. Biceps and triceps normal. Patellar right and left decreased. Rhomberg positive. Coordination tests; finger to finger, finger to nose and heel to knee; only fair. Cutaneous sensation to sharp and dull instrument impaired over lower extremities.

Laboratory Findings:

6-21-32	Kahn blood, negative
6-22-32	Kahn spinal, negative
	Colloidal Gold curve, 0000000000
6-30-32	Kahn blood, negative
7- 1-32	Kahn spinal, negative
	Colloidal Gold curve, 0000000000

Diagnosis: General Paralysis, Cerebral Type.

The following case is an example of what "heavy" treatment does to laboratory findings when taken several years later.

Case 6052. Male, white, widowed, age 68. Admitted July 14, 1933. History: Mental condition began in 1926. He was a patient at Jacksonville State Hospital, and had previous treatment by a local physician.

Neurological Findings: Neurological examination revealed pupils irregular in size, reacting sluggishly to light but not to accommodation. Asymmetry of left side of face. Patellar reflexes, right and left, active. Babinski and ankle clonus, positive. Rhomberg positive, marked swaying. Gait, staggering. Walks with a wide base. When looking up from the floor or with

eyes closed, the patient staggered toward the left. Test phrases revealed a slurring of speech.

Laboratory Findings:

1927	Blood +++++ Spinal +++++ Colloidal Gold curve, 2222221100
7-11-33	Kahn blood, negative Kahn spinal, ++ Colloidal Gold curve, 3333221000
7-18-33	Kahn Blood, negative Kahn spinal, ++ Colloidal Gold curve, 4443332110
7-25-33	Kahn blood, negative

Diagnosis: General Paralysis, Cerebral Type.

Discharged October 1, 1933. Improved.

Many cases of early and late syphilis are overlooked by the general practitioner especially in rural communities and small towns. The doctor knowing the patient for many years dismisses the possibilities of syphilis even in the face of failure of his patient to improve. He probably fails to repeat tests when they are one or two plus, or overlooks the early clinical signs of the disease.

Observations at the hospital reveal that many cases go on unnoticed until they develop mental symptoms, have seizures or marked changes in their conduct and become unmanageable necessitating commitment to an institution.

Case 5053. Female, white, widowed, age 59. Admitted July 14, 1933. Family history negative. Onset: since 1927 she has had a gradual loss of sight. Six weeks prior to her commitment she had an eruption which was thought to be "Chickenpox." She complained of severe headaches and "Rheumatism." She requested the family to send her to a hospital, and because of the family's lack of finances, she was committed to our institution.

Neurological Findings: Neurological examination revealed pupils equal in size, centrally located and did not react to light or accommodation. Blind. Biceps and triceps decidedly increased. Patellar right and left, moderately increased. Coordination tests, finger to finger, finger to nose and heel to knee, poorly done. Romberg positive, marked swaying. Gait, marked swaying. Could not walk without assistance. Skin, copper colored. Macules over entire body and extremities. A fundus examination was not made.

Laboratory Findings:

7-18-33	Kahn blood, negative
8-1-33	Kahn blood, negative
8-2-33	Kahn spinal, +++++ Colloidal Gold curve, 5555554221

Diagnosis: General Paralysis of the Insane.

Case 6567. Male, white, divorced, age 49. Admitted November 10, 1934. Family history negative. Two weeks prior to his admission he began to talk continuously about a contract he had to set out an orchard. He planned to have a demonstration, and dynamite all the holes in which the trees were to be planted. On November 25, he was determined to call on several

people to discuss his plans and have the newspaper men advertise his project. He could not be reasoned with and this led to his commitment.

Neurological examination revealed pupillary reflexes normal. Coordination tests, finger to finger, finger to nose, and heel to knee well done. Babinski and ankle clonus negative. Patellar, right and left, exaggerated. Romberg: no swaying in the Romberg position but he was unable to walk with his eyes closed and he was unable to walk in a straight line. Gait hesitating in character. Speech: Test phrases revealed a slurring of speech.

Laboratory Findings:

11-14-34	Kahn blood, +
11-15-34	Kahn spinal, +++++ Colloidal Gold curve, 4443332210
11-20-34	Kahn blood, ++

Diagnosis: Dementia Paralytica.

Expired January 1, 1935.

Case 6409. Male, white, widowed, age 58. Admitted May 21, 1934. The court papers gave the assigned causes as lues and diabetes. The son stated that his father was being treated for diabetes, and since he developed mental symptoms, they were unable to care for him at home so they had him committed. On admission he had grandiose ideas, and was confused. He had an edematous leg and ulcerated foot with the following neurological findings:

Neurological examination: Pupils contracted and fixed. Slight asymmetry of left side of face. Biceps and triceps increased. Patellar right and left increased. Babinski negative. Coordination tests: Finger to finger, finger to nose and heel to knee poorly done. Romberg positive. Cutaneous sensation impaired over body and extremities.

Laboratory Urinalysis:

5-27-34	Straw, cloudy, Sp. G. 1026, acid, sugar ++ Albumin ++
5-29-34	Straw, clear Sp. G. 1028, acid, sugar ++ Albumin ++
9-14-34	Amber, clear, Sp. G. 1010, acid, sugar 0, Albumin 0
5-29-34	Kahn blood, negative
5-31-34	Kahn spinal, ++ Colloidal gold curve, 555544432
7-17-34	Kahn blood, ++++
7-19-34	Kahn spinal, ++ Colloidal gold curve, 5544332200

After receiving anti-luetic treatment, the sugar and albumin disappeared, the ulceration healed. There was not any improvement in his mental condition.

Diagnosis: General Paralysis, Cerebral Type.

Expired October 3, 1934.

Case 6057. Female, white, single, age 19. Admitted July 18, 1933. Family history inadequate. Court interrogatories state: Feeble-mindedness; episodes of delinquency characterized by excessive sexual urge and incompetence of self management; temper fits.

Neurological examination reveals pupils equal and round. React sluggishly to light. Biceps, triceps, patellar and Achilles exaggerated. Coordination test: Finger to finger, poorly done; finger to nose and heel to knee well done. Romberg; slight swaying in all

directions. Gait, sways laterally when trying to walk in a straight line.

Laboratory Findings:

7-23-33 Kahn blood, negative
7-25-33 Kahn spinal, ++
Colloidal gold curve, 5555422000

Diagnosis: Mental Deficiency and Syphilis.

Discharged May 24, 1934.

CONCLUSION

1. It is not necessary to do spinal examination routinely except for scientific data.

2. One and two plus blood reports should be repeated several times even following provocative tests. On several occasions following a course of treatment blood tests that were negative became positive.

3. In the presence of negative blood findings and some neurological findings a spinal fluid examination should be done.

4. In doubtful cases where laboratory findings are negative and some clinical signs are in evidence, the patient should be given the benefit of the doubt, and receive a course of treatment.

State Hospital.

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THE MANAGEMENT OF VERTEX PRESENTATION BY EPISIOTOMY AND OUTLET FORCEPS

CHARLES EDWIN GALLOWAY, M. D., F. A. C. S.

From the Department of Obstetrics and Gynecology, Northwestern University and Evanston Hospital.

EVANSTON, ILLINOIS

Obstetrics, like every other branch of medicine, continues to improve and we are today in our well-run maternity wards experiencing the lowest fetal and maternal mortality rates that have ever been known. While these figures are being set up, we are finding it possible to relieve most of the pain and to shorten the duration of labor. Please bear in mind, however, that reference is not being made to obstetrics in general, we are quite aware of the condition there, but reference is being made to the well supervised hospital maternity ward manned by men specially trained in obstetrics.

One of the factors contributing to this low fetal and maternal death rate and to the short-

ening of labor is the use of the obstetrical forceps and episiotomy. Fifteen years ago DeLee took the stand that prolonged pressure of the fetal head against a more or less rigid perineum frequently results in serious injury to the cerebral tissues and recommended what he called "the prophylactic forceps operation." Today almost every obstetrician in this country will tell you that he is quite prone to apply forceps as soon as the head rests firmly on the pelvic floor especially if there is any delay or if progress is slow. These same men are maintaining a satisfactory low death rate despite the fact that a number of their cases are referred because of some abnormality.

The report presented here is based on a study of 500 consecutive private cases of outlet forceps and episiotomy. These 500 cases represent only 33% of the cases delivered during the period covered which, I think, shows that universal use of forceps is not advocated. Two pairs of Simpson forceps made exactly alike were the only instruments used.

There were 364 primipara and 136 multipara and of these 136 multipara all but 26 were having their second baby; 369 were anterior cephalic presentations; 126 were posterior; and 5 were not recorded.

Episiotomy was performed in 462 of the 500 cases, 96% of the primipara and 80% of the multipara. It was noted that 55 or 12% of these episiotomies extended a little, either up into the vagina or down in the general direction of the cut or toward the rectum. None of them extended through the rectum. Fully 90% of all primipara will have a tear if delivered without episiotomy and will have resulting relaxation of the introitus. Thirty-two cases were delivered without episiotomy and 25 of the 32 had tears of the vagina—eight out of eleven primipara and 17 out of 27 multipara. Five cases developed a hemotoma of the perineum. Three of these occurred immediately after delivery and it was necessary to take the patient back to the delivery room to resuture the wound. The other two were small and unnoticed until the discharge examination.

Out of the 126 cases of occiput posterior 58 rotated spontaneously and were extracted with the small fontanel under the pubis. Of the remaining 68 manual rotation was attempted in 61 and was successful in 56. Three of the five cases where manual rotation was unsuccessful were

rotated with the forceps and the other two were extracted with the head still in the posterior position. The Scanzoni maneuver was used in seven others with success.

It is our custom to inspect the cervix in every case delivered with forceps following the third stage of labor and to repair any tears that are found at that time. Cervical tears were recorded in 79 cases.

The maternal mortality was zero and the fetal mortality was 1% or 5 cases. A short history of these five fetal deaths is given below. Four out of the five had autopsies.

FETAL DEATHS

1. Baby T. (No autopsy). Hard delivery; baby went into shock; did not cry for fifteen minutes; then cried very well; color became good; convulsed suddenly. Dr. Sauer called; lobeline and atropine given; no respiratory obstruction; convulsions continued; baby died in three hours.

2. Baby B. Weight 7 pounds. Post Mortem Diagnosis: Multiple hemorrhages of the leptomeninges; multiple small subserous hemorrhages of the parietal pleura and pericardium.

3. Baby B. Weight 7 pounds $3\frac{1}{4}$ ounces. Died on 17th day of acute generalized fibrino-purulent peritonitis; slight broncho-pneumonia. Cause of infection unknown; no evidence of cord infection. Autopsy. Mother had a severe anemia; hemoglobin 40%; R.B.C. 2,900,000.

4. Baby Girl S. Weight 7 pounds $4\frac{1}{2}$ ounces; died in 6 hours. Post Mortem Diagnosis: Generalized anascara; atelectasis of the lungs. Very severe intrauterine infection. Baby was very rigid when born. Meconium in liquor ++; true knot in cord; slow heart tones.

5. Baby Boy M. Weight 6 pounds; 47 centimeters; 25 days premature. Post Mortem Diagnosis: Premature; congenital atelectasis of the lungs; slight laceration of the tentorium cerebelli with slight hemorrhage into the posterior cerebral fossa; hemorrhage of the tentorium and falx cerebelli. Cord three times around neck.

During the past eight years at the Evanston Hospital where 700 to 1,000 cases are delivered a year, we have had a fetal mortality with outlet forceps and episiotomy of 1.7% and with spontaneous delivery for the same period of time the fetal mortality was 1.8%.

Out of the five hundred cases reported here there were only 19 cases of morbidity, according to the American and British standard, which gives an incidence of 3.8%. During the two years, 1932 and 1933, the morbidity rate for all cases delivered by low forceps in our maternity ward at Evanston Hospital was the same as the figure

just quoted, 3.8%. The morbidity rate for all obstetric cases delivered during those two years was 4.5%.

Notes on the nineteen cases of morbidity are given below.

1. Mrs. J. M. Temperature: 102.3 on 3rd postpartum day; 101.6 on 4th postpartum day; 99.4 on 7th postpartum day; 99.4 on 10th postpartum day (day of discharge). Red area in one breast.

2. Mrs. E. H. Twins. Temperature: 103.0 on 1st postpartum day; 101.0 on 2nd postpartum day; 99.4 on 7th postpartum day; 99.0 on 8th postpartum day. Mild psychosis last five days in hospital.

3. Mrs. V. D. Developed a hematoma in the episiotomy wound. Returned to case room 4 hours postpartum. Opened and resutured. Temperature: 101.4 on 4th postpartum day; 100.8 on 5th postpartum day; 100.2 on 6th postpartum day; 100.4 on 8th postpartum day. Discharged on 18th postpartum day.

4. Mrs. E. J. Temperature: 100.6 on 2nd postpartum day; 100.4 on 3rd postpartum day; 101.0 on 4th postpartum day; 100.4 on 5th postpartum day; 99 to 100 to the 11th postpartum day; normal thereafter and home on 17th p. p. day. Postpartum hemorrhage; uterus packed; hematoma of the perineum; episiotomy resutured.

5. Mrs. F. C. Temperature 100.4 on 3rd and 4th postpartum day. Normal thereafter.

6. Mrs. V. E. Very nervous. Multiple fibroids of the uterus. Temperature: 100.0 on 4th postpartum day; 100.8 on 5th postpartum day; 100.2 on 6th postpartum day; 99-100 on 7th postpartum day to 10th p. p. day; 101.6 on 11th postpartum day; 100.6 on 12th postpartum day. Discharged on 13th postpartum day.

7. Mrs. A. A. Bladder over-distended 2nd postpartum day. (2300 c.c.) Had been catheterized on the previous day for residual and nothing was obtained. Had to be catheterized for the next ten days. Two months postpartum symptoms of urinary infection; under care of Dr. Corbus. Hydronephrosis, dilated ureter-obstruction at uretero-pelvic junction. Ptosis (3 inches) of the right kidney. Bladder culture: Colon Bacilli. Kidney Specimens: Showed no growth.

8. Mrs. M. McB. Diarrhea with nausea and abdominal pain along the colon; colon very tender; no pelvic pain or other signs of pelvic infection. Rest and opium yielded results. Temperature: 100.8 on 8th postpartum day; 101.0 on 9th postpartum day; 100 on 10th postpartum day. Normal thereafter.

9. Mrs. W. B. Temperature: 102.2 on 3rd postpartum day; 100.8 on 4th postpartum day; 100.0 on 5th postpartum day; 100.4 on 6th postpartum day. Normal thereafter. Nothing noted on chart except very tender breasts.

10. Mrs. H. F. Temperature: 100.2 on 2nd postpartum day; 101.8 on 3rd postpartum day; 101.0 on 4th postpartum day; 100.0 on 5th postpartum day. Nothing noted on chart to account for temperature elevation. Had hemoglobin of 44% on 1st postpartum day.

11. Mrs. G. N. Temperature normal until 12th postpartum day. Temperature 102.6 on 13th postpartum

day; 102.0 on 14th postpartum day. Normal that night. Had a profuse bloody vaginal discharge for three days at end of second week. Urinalysis 2 weeks postpartum—albumin +; pus. Urine culture: *Strep. viridans*; *Staph. albus*. Also pain, tenderness and red-dened area in the right breast.

12. Mrs. F. O'B. Chill and temperature of 103.2 on 11th postpartum day; 101.0 on 12th postpartum day; 100.0 on 13th postpartum day. Diagnosis: Breast infection.

13. Mrs. L. McM. Temperature 100.4 on 2nd and 3rd postpartum days. No other symptoms except engorged breasts and fissured nipples.

14. Mrs. I. C. Pyelitis during pregnancy. Temperature: 102.2 on 1st postpartum day; 103.2 on 2nd postpartum day; 100.2 on 3rd postpartum day. Taken to cystoscopic room on 3rd postpartum day. Ureteral catheters inserted for drainage. Responded well to drainage.

15. Mrs. V. C. Temperature: 100.0 on 1st postpartum day; 101.2 on 2nd postpartum day; 101.0 on 3rd postpartum day; 100.0 on 4th postpartum day. Gradual decline to normal on 10th p. p. day. Took anaesthetic very poorly. Emesis of thin green fluid. Three hours after delivery she had a sudden, severe pain in her chest, followed by severe chill and temperature to 104 with cough. Dr. H. MacDonald diagnosed as pulmonary embolism. Paresis of bladder for 10 days also.

16. Mrs. L. B. Temperature: 100.8 on 1st postpartum day; 101.0 on 2nd postpartum day; 100.2 on 3rd postpartum day; 100.0 on 4th postpartum day; 99.4 on 5th postpartum day; 100.8 on 6th postpartum day. Normal thereafter. Double uterus. Two cervices. Septum in vagina. Pregnancy on right side. The space between the two cervices and the lower part of the partition between the two uteri destroyed by the advancing head.

17. Mrs. H. A. Temperature: 101.0 on 2nd postpartum day; 101.2 on 3rd postpartum day; 99.2 on 4th postpartum day. Normal to 8th postpartum day when it rose to 100.4. It stood at 99 until the day of discharge when it was normal. Diagnosis: Infection of upper respiratory tract.

18. Mrs. N. N. Temperature: 104.2 on 3rd postpartum day following a severe chill. 101.2 on 4th postpartum day; 103.2 on 5th postpartum day; 100.4 on 6th postpartum day; 100.6 on 7th postpartum day; 100.0 on 9th postpartum day and then normal. Diagnosis: Probably pyelitis of right kidney.

19. Mrs. E. S. Temperature: 101 on 6th postpartum day; 100 on 7th postpartum day; 102 on 8th postpartum day; 101 on 9th postpartum day and then normal. Only other symptom was a slight cough. Physical examination negative.

There were five postpartum hemorrhages and in all five cases the uterus was packed with gauze. Seven cases had moderate sized fibroids but they furnished no obstruction or other complication. One patient developed eclampsia

shortly after delivery but had only one convulsion and was discharged at the normal time. Three cases developed breast abscesses that were incised and drained. One case received a radial nerve injury, probably from the position assumed on the delivery table. Two developed a mild puerperal psychosis but recovered in a short period of time. One had a superficial thrombosis of a vein below the knee. Two cases were delivered that had old ischiorectal abscesses which were draining at the time but no infection of the pelvis resulted. Three cases were delivered that were known to have acute gonorrhea in early pregnancy but none developed fever or other evidence of infection and none of the babies were infected. All three gave repeated negative smears before delivery.

All of these patients were examined after six to eight weeks had elapsed from the time of delivery and the following information was obtained. Only 25% were nursing their babies without supplementary feeding and 40% were not nursing at all. The average duration of bloody show was four weeks. Forty-two per cent. reported some vaginal discharge at the time of the examination. Only 5% reported any pelvic pain. Fifty-one or 10% were complaining of constipation and 82 or 16% had hemorrhoids.

Constipation in pregnancy seems to be on an endocrine basis and the condition of course, predisposes to dilatation of the rectal vessels. This together with the mechanical factors of pressure and dilatation predispose to this fairly high percentage of rectal pathology. Hemorrhoidectomy was performed three times on the tenth postpartum day.

One hundred and three, or 20% of the patients, complained of backache. This complaint is not gone into very often because it seems to be so common with women these days that one could spend his entire time investigating it. It is the opinion of most gynecologists that only about 15% of the backache in women is due to some pelvic condition and it is the author's opinion that most of it is due to lack of muscle tone and abnormal posture from wearing fancy shoes.

All of these patients had a catheter passed just before delivery and many were catheterized postpartum. Ten cases developed what could be termed a severe paresis of the bladder and were catheterized for ten days or more. Only six cases developed a cystitis from these catheterizations.

When the patients were examined at six to eight weeks postpartum, the following findings were noted:

Vagina tight or painful 33; granulation tissue in scar 14; cystocele or rectocele 9; open or gaping 11 and of these 11, four were advised to have a vaginal repair.

Cervix—lacerated 62 and eroded 124. Four of the cervical lacerations were given secondary repairs and the electric cautery was used on 185.

Uterus was found to be retroverted in 109 which is about the normal incidence of retroversion among women in this locality. Only 83 of these were treated with pessary as the other 24 had undergone complete involution and were freely movable with no symptoms. The uterus was not completely involuted in 23 cases. Where this condition was found, the patient was treated with from three to five glycerite of boroglycerine tampons and long hot douches. The uterus was considered free in all but six cases and swelling of the adnexae was noted in only fifteen. Fibroids of the uterus in seven cases furnished no symptoms that were noted on the charts.

Summary and Conclusions.—Five hundred patients with cephalic presentations were delivered with forceps and episiotomy after the head had reached the pelvic floor.

The incidence of morbidity was 3.8% which corresponds very well with maternal morbidity as a whole.

The fetal mortality was only 1% which is much lower than average for full-term delivery.

There were no maternal deaths.

Seventy-nine cases were found to have cervical tears and these were repaired at the time whereas in spontaneous delivery without episiotomy, where only a few emergency sutures are placed in the perineum, the cervix is seldom, if ever, inspected and these tears go unnoticed.

Only nine cases were found to have cystocele or rectocele at the final examination. Anyone working among clinical patients delivered by mid-wives and students knows how frequently these conditions are found.

Five cases of hematoma of the perineum show a faulty or too hurried repair. We attempt to repair the episiotomy without tying the bleeding points. More attention must be given to control of bleeding from the wound.

The catheter is being passed too often. The incidence of puerperal cystitis was low but it is

doubtful that it is low because of so many catheterizations.

636 Church Street.

POSTOPERATIVE OR INCISIONAL HERNIAS OF THE ANTERIOR AND LATERAL ABDOMINAL WALL

AIMÉ PAUL HEINECK, M. D.

Surgeon to St. Paul, Frances Willard and American Hospitals,
CHICAGO

Postoperative hernia is a serious surgical condition not infrequently encountered by all abdominal surgeons. The repair of these hernias is often a trying problem especially when through extensive and prolonged infection considerable fascial and muscle tissue has been lost and there remains a gap which cannot be closed by the usual methods of herniotomy.

The abdominal wall acts as a buttress for the abdominal viscera. It assists in the regulation of intraabdominal pressure; it aids in the processes of respiration, urination, defecation and parturition. All incisions of the abdominal wall weaken it, impair its integrity and predispose to hernia formation. It may not be amiss to state that the fundamental principles that underlie the treatment of incisional hernias are equally applicable to the prevention and cure of recurrent hernias: inguinal, femoral, umbilical, etc. Incisional hernias may occur through any part of the abdominal wall, median, lateral, posterior. They are always associated, even when uncomplicated, with pain, discomfort, impaired efficiency and functional disturbances. These hernias are of various sizes, they may be recent or old, reducible or irreducible, inflamed, obstructed or strangulated, may protrude through part of, or bulge through the whole length of, the incisional scar. The sac and contents of incisional hernias present the same characteristics as the sac and contents of other hernias. The hernial sac may be the seat of a localized peritonitis, bacterial, traumatic, mechanical; the contents may be the seat of inflammatory, degenerative or neoplastic changes. Any abdominal viscus, the pancreas excepted, may be found in the sac of a post-operative hernia.

The object of this communication is two fold: first, to enumerate and emphasize preoperative

and operative details that tend to prevent or rather minimize the occurrence of postoperative hernias; second, to suggest appropriate measures for the complete and permanent cure of this handicapping infirmity.

Incidence of Incisional Hernias. The percentage incidence of incisional hernia is variously estimated. Cave¹ states that in 5,366 abdominal operations, postoperative hernia occurred in 2.2 per cent; Stanton,² in 500 laparotomies which he performed noted 24 postoperative hernias; Sokolov,³ from replies received to an international questionnaire sent to 1,140 surgeons, reports that the condition is more frequent in males than in females; the incidence of wound separation in all abdominal operations ranged from 0.03 to 3 per cent, but he himself thinks that the current percentage ranges between 2 and 3 per cent; Garbien⁴ states that in 1,123 laparotomies performed in the obstetrical and gynecological sections of the Lemberg Hospital (within 3 years), the incidence of postoperative hernia was 2 per cent.

Regarding the proportion of all incisional hernias, Masson⁵ cites a 10.8 per cent incidence of incisional hernias in 5,502 cases of hernia treated at the Mayo clinic. Cave found the incidence at the Roosevelt Hospital, New York, to be 6.02 per cent. Cave further states that about 60 per cent of incisional hernias develop within two months following the original operation and that the great majority occur in patients beyond the thirty-fifth year of age. However, an incisional hernia may, following a severe effort or strain, such as a paroxysm of cough, the lifting of a heavy weight, etc., develop several years after an operation.

Garbien, considering pelvic operations in the female, gives the incidence of postoperative hernias for special operations as follows: The percentage following hysterectomy was 1.14; following cervical carcinoma, 3; following cesarean section, 2; following operations for uterine myomas, 2.26; following operations for non-suppurative inflammations of the adnexa, 2; following suppurative inflammations of the adnexa, 2.

Unusual Postoperative Incisional Hernias. The Littré or Richter type of hernia, partial enterocele or, as it is sometimes described, hernia of Meckel's diverticulum, is rare as a postopera-

tive hernia. The ileum is the portion of the intestine most commonly affected. This partial enterocele is occasionally found in association with ventral postoperative hernia and its possible existence should be borne in mind, in many cases of pain and discomfort in the region of abdominal operative scars, even when there is not an obvious bulging. A small knuckle of bowel may be adherent to the scar through a small rent in the peritoneum, and the amount of bowel obstruction will depend on the size of the rent and on the volume of the protruding knuckle. Mild cases may produce only pain or discomfort with more or less constipation; severer cases produce more marked symptoms with nausea, vomiting and obstruction. The symptoms and diagnosis are those of intestinal obstruction, partial or complete, but the enterocele is always partial. In the less severe cases, the condition of hernia may be entirely unsuspected as the symptoms do not suggest it.

Rhodes reports three cases of partial enterocele in association with former operative wounds; all three were old appendectomy cases. In two of these patients, the fibers of the internal oblique and transversalis muscles had been cut across just beside the edge of the rectus muscle. A knuckle of small intestine bulged through an opening in the peritoneum. In the third case, at the time of the original operation a loop of ileum had been caught in a niche when the peritoneum was being sutured. Following a corrective operation, all three patients made good recoveries with cessation of their symptoms.

A curious case is reported by Giordanengo. The patient's injuries, an extraperitoneal rupture of the bladder, called for an emergency cystostomy. A fistula followed. Owing to the incomplete or unskilful closure of the abdominal wall, there resulted a hernia of the urinary bladder in the suprapubic region of the linea alba. Incomplete evacuation of urine and other urinary disturbances including cystitis followed.

Milone¹⁷ reports the case of a woman operated upon 22 years previously, a cholecysto-appendectomy had been done. The wound opened about two months later with a serosanguineous discharge; it finally closed. About a year later, there developed a tumefaction, the size of an adult's head. It contained a large part of the stomach, small intestines and part of the colon;

the original incision was pararectal and was partly ulcerated in its lower part.

Bates¹⁸ reports an incarceration of the gall bladder through an old abdominal incision. Fifteen years previously, the patient had had a gall bladder drainage operation. The acute pain and other symptoms present led to the pre-operative diagnosis of ventral hernia with incarceration of a portion of the bowel. Operation disclosed a gallbladder herniated through the ventral incision. Only a few such cases are described in the literature.

Sarnoff¹⁹ reports a lumbar hernia complicated with two ovarian cysts. Lumbar postoperative hernias are rare, as the muscles in this region have close points of attachment to the underlying viscera which, in part, are extraperitoneal. Following renal operations, hernia rarely develops unless there has been a good deal of postoperative suppuration. The structures of this region are skin, a good layer of fat, four layers of muscle, namely, the latissimi dorsi, external oblique and the internal oblique, and the transversalis muscle going transversely toward the midline. In Sarnoff's case, a lumbar irreducible hernia complicated by torsion of large multilocular ovarian cysts, the size of a watermelon, of both left and right ovaries followed a nephrectomy. After removal of the cysts there was room in the abdomen for the viscera extruded in the hernia. The patient made a good recovery. In this case the intraabdominal growths probably favored the herniation.

Postoperative femoral hernia can follow and has followed the repair of inguinal hernia. Studsinsky²⁰ records such a case and he cites the following possible factors in the occurrence of such hernias; 1. the contents of the inguinal hernia having been returned into an abdominal cavity too small to hold them; 2. the repair of the inguinal hernia has a tendency, in certain cases, to elevate a relaxed Poupert's ligament, thus increasing the patency of the femoral canal; 3. the individual predisposition to hernia formation by reason of fat, flabby muscles and relaxed ligaments; 4. certain cachectic states, including tuberculosis and malignancy.

Incisional and inguinal hernias not uncommonly follow operations for appendicitis. Griffiths,²¹ Balfour,²² Griffiths reported 11 such cases, 10 of which occurred on the right side and

one on the left. The incision employed for the removal of the appendix was of the McBurney muscle splitting type in all but one case, and in this one a right rectus incision was made and the muscle was retracted instead of being split. These 11 cases occurred among 100 consecutive cases of hernia and the time elapsed varied from a few months to three and one-half years after the appendectomy.

Others, who have reported right inguinal hernias following appendectomies in which a McBurney incision had been used, do not agree that there is any definite connection between the McBurney incision and the development of the inguinal hernia. Some think that injury to the branch of the ilioinguinal nerve, internal to the anterior-superior iliac spine, in the McBurney incision is the cause of many postoperative inguinal hernias, since it produces a paralysis of the muscles and of the conjoined tendon around the internal ring. Cases have been reported of patients, with right inguinal hernia which followed the McBurney incision, operated upon for repair of the hernia and from whom at the same time sections of the ilioinguinal nerve were removed from the canal. Histological examination disclosed partial degeneration in several such cases. Unquestionably, appendectomy is done many, many times by the McBurney incision without subsequent development of hernia. It is our opinion based on personal experience that the McBurney incision may well be used with advantage if care be taken not to injure the ilioinguinal nerve.

Prevention of Postoperative or Incisional Hernias. Most factors, mechanical, infective, operative or asthenic, known to favor the development of incisional hernias of the anterior and lateral abdominal wall can, in a large measure, be eliminated by the employment of a satisfactory surgical technique and judicious pre- and postoperative treatment. From the standpoint of potentiality, these factors can be classified as preoperative, operative and postoperative. All these causative factors demand at the appropriate time the vigilance and consideration of the surgeon.

In abdominal operations of election as well as in all other operations in which delay is permissible, the careful surgeon places his patient in condition to withstand the operative assault.

Patients suffering from systemic diseases should when circumstances permit undergo careful preoperative rehabilitation. Appropriate measures must be taken to combat obesity, albuminuria, glycosuria, chronic pulmonary affections, etc. In obese patients, who overeat or who lack sufficient exercise, restrict the diet, increase elimination, measure the intake and output of water; in individuals with voluminous hernias, order semi-starvation and make persistent and numerous preoperative attempts to reduce the hernia and to keep it reduced if possible. Massive hernias whose contents when replaced would dangerously increase the intraabdominal tension necessitate preoperative treatment to insure permanency of cure. The sudden reduction of a large amount of intestines into the abdominal cavity has been responsible for several deaths from interference with the heart's action.

b. *Avoid too lengthy incisions.* Incisions should be adequate in length to the needs of the operative procedure at hand and no longer. Other things being equal, the longer the incision, the greater the weakening of the abdominal wall. Rieder¹⁴ reviewed the upper abdomen operations in Sudek's clinic from 1921 to 1928. There were 215 median incision laparatomies with 62 postoperative hernias, 22 diastases of the rectus and 6 small openings in the white line; in 73 paramedian incisions, there was no postoperative hernia and only 3 diastases of the rectus; 21 pararectal incisions gave 8 hernias; in 17 transrectal incisions, there were 2 hernias; in 36 with an angular incision, namely, a median incision with a horizontal branch or one parallel to the costal border, there were 9 hernias. Rieder, therefore, thinks, that in the upper abdomen, the paramedian incision least impairs the solidity of the abdominal wall and best avoids hernia development. Such an incision begins at the xiphoid appendix and descends below the umbilicus. Cave is of the opinion that in the upper abdomen muscle-splitting incisions result in fewer hernias.

In the lower abdomen, the consensus of opinion seems to favor midline rather than paramedian incisions. The latter leave a thin strip of muscle which does not easily unite postoperatively and which has a tendency to atrophy. Cave recommends that the incision through the posterior sheath of the rectus, transversalis fascia

and peritoneum be made more medially ($\frac{3}{4}$ to 1 inch) than the incision through the skin, anterior sheath and rectus muscle.

c. *Avoid needless traumatizing of tissue;* be gentle in all your operative manipulations. Visceral adhesions to the parietal peritoneum at the site of incision favor hernia production. Avoid avulsion or traumatizing of nerve twigs. In appendiceal and hernial operations, the ilioinguinal, the iliohypogastric nerves are exposed to cutting. Sectioning of nerves results in muscle injury, muscle atrophy and muscle paralysis. Muscle atrophy follows section of the rectus nerve supply. The latter enters at right angles to the direction of the muscle fibers and passes more or less horizontally across the midline. When a longitudinal incision passes between these fibers, the motor nerve supply to the fibers lying medial to the plane of incision is more or less completely destroyed, unless chance regeneration of the axis-cylinders quickly occurs. By displacing the rectus muscle laterally after its anterior sheath has been opened, the integrity of the nerves remains undisturbed. (Bachman). The sheath medial to the incision is reflected toward the midline exposing the inner border of the muscle. Incision through the posterior rectal sheath, fascia transversalis and peritoneum can be continued in the same plane as with the skin incision.

d. *Secure perfect hemostasis* thereby avoiding the formation of postoperative hematmata between the layers of the operative wound.

e. *Use absorbable suture material.* In all our primary laparatomies, we use absorbable suture material. In all operations for voluminous, recurrent or incisional hernias, we use fascia lata, either living or preserved.

f. *Secure perfect asepsis.* Operate in an operating room used exclusively for non-infected surgical cases. Infection produces a more rapid disintegration of catgut; knots more easily slip apart, when bathed by infected serum or frank pus. In the presence of these conditions, coughing, sneezing, hiccoughing or other causes of increased intraabdominal pressure more readily force a small tag of omentum or even a knuckle of bowel wall between the edematous wound edges. Sloughing of vast areas of tissue results from infection. This loss of tissue predisposes to partial herniation through the incisional scar.

Sepsis accounts for many recurrent hernias and for many incisional hernias.

Suppuration and infection have been attributed to a variety of incidental causes such as the suture material used. A few authors favor the use of silk for buried sutures; most operators, however, favor the use of absorbable suture material. This brings up the old question of freedom of commercial catgut from infection. Knorr¹¹ recently made a thorough study of this subject. He found that 80 per cent of samples of commercial catgut, purchased in the open market, did not conform to the officially established definition of sterilization. His bacteriological findings were completely confirmed by microscopic examination. Such catguts might contain even gas gangrene bacilli. "Sterile" catgut might even contain actinomyces. The typical catgut flora is especially the *B. mesentericus ruber* which is frequent. While wound infections cannot always be attributed to catgut, nevertheless it is admitted that this suture material may be the cause of suppuration in an otherwise clean operation, and that the methods of catgut sterilization apparently leave much to be desired, no matter what manufacturers assert. In some susceptible hypersensitive patients, catgut as a foreign protein may give rise to reactions.

Besides Knorr, Meleney and Chatfield¹² have also shown that postoperative infections may be traced to catgut. Their examinations of specimens of catgut purchased in the open market have convinced them that surgeons throughout the United States often use contaminated catgut. In their specimens, they found all of the common gas gangrene organisms and others have found the bacillus of tetanus. Hellendall¹³ mentions that infection occurred in from 2 to 3 per cent of the aseptic operations carried out in the surgical clinic of Konigsberg; it is possible that the source was the catgut used. "Non-sterile sutures, have during 1931-1934 been marketed by several American catgut manufacturers" Clock.

g. *Avoid excessive tension on the suture line.* Obtain contact without tension. Tight suturing means tissue tension. Tissue tension causes local impairment of tissue nutrition and diminished tissue vitality. Excessive tension frequently results from attempts to bridge too

wide a defect with insufficient tissue. The tissues tear out; the sutures tear out. Divided tissues call for apposition, approximation, and not strangulation. The latter causes necrosis. A suture, especially a deep suture, if placed under great tension will devitalize the tissue within its bite and leave a weak spot for later protrusion.

h. *Avoid precipitate, careless or improper closure* of the incised layers of the abdominal wall; an operation is not a speed contest. A weary operator or an inexperienced surgeon is often responsible for the malocclusion of the laparotomy wound. Careful suturing of the peritoneum, transversalis fascia and of the posterior and anterior sheaths of the rectus is of paramount importance in median laparotomies.

i. *Avoid needless drainage*, avoid needlessly prolonged drainage. Drains are soon sealed off and do not drain any considerable portion of peritoneum. Any wound necessitating drainage of the peritoneal cavity evokes a potential hernia. When drainage is necessary, bring the drain out through a stab-wound rather than through the primary incision. In gallbladder surgery, there is now a tendency not to drain an aseptically performed operation. Stab wound drainage through the right flank serves the two-fold purpose of firm closure and drainage, but drainage tubes should be left in place only for the minimum time. Cave states that over a ten year period, in one surgical division alone, 444 patients were operated upon for acute appendicitis through a McBurney incision and followed up; in 162, the wound was drained and in 282, not drained. In no instance, had an incisional hernia been detected in the non-drained group; on the other hand, in the 162 drained cases, 21 patients developed a definite postoperative incisional hernia.

For the prevention of incisional hernias and also for their successful treatment, all abdominal section patients should receive adequate, judicious and prolonged postoperative care. After closure of the operative wound and the snug and intelligent application of the abdominal binder and the adhesive tapes, the patient is to be placed in bed, in the jack-knife position with the shoulders and knees raised on pillows, to an angle of about 45 degrees. This position lessens the tension on the suture line, facilitates

firm tissue-union and is especially indicated after operations for inguinal or femoral hernia. It relaxes Poupart's ligament, the conjoint tendon with its component parts and to a lesser degree the rectus muscle.

After recovery from any laparotomy, it is desirable to avoid and combat all causes of increased intraabdominal pressure: coughing, sneezing, vomiting, hiccoughing, abdominal distention, urinary retention, constipation, etc. For coughs, use sedative expectorants; for vomiting, if repeated, gastric lavage; for hiccough, inhalation of 5% CO₂ in O₂; for urinary retention, urotropin in repeated doses; if this be ineffective, resort to vesical catheterization; for abdominal distention, pituitrin, hypodermically; for constipation, enemata and cathartics; for postoperative restlessness, resort to hypnotics first, narcotics, if hypnotics fail. Sutures need not be removed on schedule time. The rate of absorption or dissolution of strands of catgut varies according to altered chemical reactions of the body-juices. In certain patients, the catgut is prematurely absorbed, and thus the sutures are deprived of their retentive function, the deeper layers of the wound gap and an incipient hernia is initiated. One should not be over-zealous about getting patients out of bed too soon. Twenty-one days in bed after an operation for incisional hernia is none too long. Unusual body exertion should be avoided for at least three months. Patients should be warned to avoid constipation; if a woman, to avoid, if possible, the risks of pregnancy. Postoperative increase in weight should be avoided by exercise and hygienic and dietetic measures. Obesity predisposes to hernia formation; the accumulated fat being deposited in the omentum, in the mesentery and in the subperitoneal tissue increases the intraabdominal tension. Sokolov thinks that diet and season are factors in hernia formation. In northern people, he found that postoperative hernia occurred most frequently in the early part of the year and explains this fact on the basis of the general fatigue and a relative vitamin C deficiency present during the winter months. As a prophylactic measure, he also recommends a diet rich in vitamin.

For the last three years, in all recurrent and in all incisional hernias that we have operated on for radical cure, we have invariably employed

as buried suture material, fascia lata, either living or preserved. As our results have been uniformly satisfactory and as we have not modified in any other way the technique of the operations we employ, we attribute our improved results to the employment of fascia lata as suture material and as grafts. Living fascia possesses the advantages of accessibility, elasticity, abundance, strength and readiness to heal when transplanted. We grant, that fascial sutures either living or preserved are not usually indicated to approximate the divided tissues of the ordinary laparotomy wound.

The great advantage of fascia grafts is that they become an integral part of the tissues that they unite. Autogenous fascial grafts live and add greatly to the strength of fascial layers which are deficient or have atrophied. The texture of the tissues becomes attached to the grafted part by the ingrowth of fibroblast. The grafted fascia lata living or preserved, has proven to be an ideal suture. Becoming incorporated into its host with only slight reaction and slight absorption, it acts as a permanent scaffolding for the ingrowth of the host's own cells. Living sutures are not absorbed and they continue for all time to perform the function for which they are intended.

Through the establishment of vascular networks, the implanted tissue becomes vascularized. Dead cells are carried away and are replaced by living cells from the tissues of the host. (Koontz, Nageote).

We secure living fascia lata from the outer side of the thigh; the fascia lata there is thick and loosely attached to the vastus externus. We have employed the technique first employed by McArthur, who partly detached strips, one-eighth to one-fourth inch in width, and of the length of the external oblique aponeurosis from the termination of the fleshy muscle to the pubic attachment. McArthur's method avoids the necessity of an additional incision. Its disadvantage lies on the limited amount of fascia available from the aponeurosis, and often where it is most needed, the external oblique is so fringed or so thin that satisfactory strips cannot be obtained. Gallie and Le Mesurier recommend and successfully employ autogenous grafts of fascia lata, cutting them into proper lengths and proper widths, approximating in a few cases, in

others, by far the greater numbers, overlapping the edges of the hernial defect. It is important to remove the layer of areolar tissue present between the fascia lata and the underlying muscle. In suturing fibrous structures, the intervening areolar tissue must be removed in order to secure firm union. The more carefully the areolar tissue is removed from both structures to be united, the firmer the resulting union. If the gap cannot be closed without tension, we place and sew a sheet or two of fascia lata over the defect. To close large defects of the abdominal wall, I preferably employ free transplants of fascia lata to the transposition of aponeurotic flaps. I deem it unwise to weaken any area of the abdominal wall for the sake of fortifying another area. Transplants enable us to replace tissues that have been lost by infection or other forms of destruction. These transplants of living fascia lata from the thigh to reinforce the hernia repair are usually taken from the thigh opposite the side on which the hernia is situated; thus, the two operators are not in each other's way. Many clinicians employ living fascial grafts. The drawback of Gallie and Le Mesurier's operation is that an additional operation has to be done in order to get the needed fascial suture material. Many patients object to the thigh incision. We are now employing as suture material in the repair of incisional hernias, ox-fascia lata sterilized by chemical means and preserved by immersion in an alcoholic solution. We employ preserved ox-fascia lata, either as an ordinary suture material or as a basketweave network to close defects. In some cases, we use two sheets or layers of fascia lata placed at right angles to each other.

Treatment of Incisional Hernia. The ideal time to operate on incisional hernias is when they are small for the reparative operation at that stage is relatively easy. It is obvious that in incisional and also in recurrent hernias, successful operative treatment cures the existing hernia, but does not remove all the predisposing causes, hence the frequency and tendency to recurrence of this pathological condition. Quite a number of plastic methods have been devised for the cure of postoperative incisional hernias, most of them depending upon the use of living or dead fascia. Multiplicity of methods of treatment seems to be a confession of failure. If

there is eventration, of course the first thing is to reduce the abdominal viscera. This is effected especially by posture. It is not always easy and Welton²³ describes a method of doing it. He takes two strips of iodoform gauze, 4 to 6 inches long, sutured end to end with catgut, and placed over the presenting abdominal contents. The edges of the wound are freshened and again closed not in layers but each stitch taking all layers with silkworm-gut. The gauze strips are removed on the tenth day in two pieces by pulling on the free projecting edge of the silk piece, the catgut connecting them, the sutures having been absorbed.

For the repair of an ordinary vertical incision hernia, the overlapping of the edges of the defect by the aid of transplanted living fascia strips is the most common method in use. The strips are inserted and used as sutures to keep both recti edges in apposition, or may maintain these imbricated, overlapping one another in the middle line or paramedially. The method of using autogenous fascia lata strips as suture material and as grafts for the repair of hernias, was originated by Gallie and Le Mesurier²⁵ in 1924. These transplanted strips persist as living tissue and become incorporated in the muscle with which they are associated. Koontz²⁶ believes that equally good results can be obtained with preserved animal fascia. The use of preserved ox-fascia avoids the need for an extra operation. Sigalas prefers metallic sutures or heavy silk passed through all the layers of the abdominal wall. My experience with metallic sutures in hernia repair work has been discouraging and has led me to discard them completely in herniotomies.

For lateral eventrations especially of the lower abdomen Demel²⁷ recommends that the abdominal wall should be reconstructed layer by layer making a duplication of the superficial aponeurosis; if the latter cannot be done he employs a graft or performs a plastic operation.

Sometimes a postoperative hernia with eversion is of long standing. Mathews²⁸ describes a case of a very large strangulated hernia which followed an appendectomy done 18 years previously. During this entire period the hernia had increased in size. Under spinal anesthesia, the skin and subcutaneous cellular tissue were widely dissected away from the fascia on both sides and the bowel freed from the parietal peri-

toneum to which it was attached. After application of the thickness of the sac (which was composed of peritoneum fascia and fibrous tissue) it was sutured over to the under surface of the abdominal wall on the right side, using continuous catgut sutures. The flap on the left side was brought over in the same way to the fascia of the other abdominal wall. The wound healed primarily.

In a case of recurring umbilical hernia in which on account of muscle atrophy, it was impossible to approximate the edges of the recti muscles, Comolli²⁹ did a muscular plastic operation with the two gracilis muscles, sectioned at their distal extremity, pulled up and fixed next to each other in correspondence with the umbilical pubic line, as a substitute for the anterior rectus muscle in its subumbilical portion.

Recurrence of repaired postoperative hernia is said to occur in from 25 to 40 per cent. of the cases. The recurrence must be treated like an original hernia. Sokolov states that in his collected 614 cases, the wound was tightly closed again with 132 deaths; in 203 cases, the open treatment was used, with 72 deaths. Many of these cases were extensive eviscerations and peritonitis was the most common cause of death with pneumonia and shock next.

Our method of procedure in incisional hernia is the following. By elliptical incisions we surround the old operative scar and then excise both the scar and the skin within the incision. As these hernias are frequently irreducible and strangulated, as their contents are frequently adherent to the sac, it behooves one to proceed cautiously so as not to injure the sac contents. The sac is freed down to its neck and the fascia carefully cleaned for about 5 cm. in each direction from the neck of the hernial sac. The sac is then opened cautiously and is freed from its contents if this be easily feasible. Herniated omentum, if fringed or showing degenerative changes, should be removed. Elongated omental fringes are very liable to contract adhesions to the abdominal parietes and to cause subsequent mischief. Omental removal makes the operation easier, and the chance of recurrence less. The adhesions should be cut or separated from the bowel wall close to the sac, if this can be done without much traumatizing of the gut. In diffuse massive hernias where the intestines are adherent to the sac, and it is difficult and dan-

gerous to attempt the entire removal of adherent saccular tissue, islands of sac may be left attached to the loops that are returned to the abdominal cavity. The sac is when possible completely removed. For the closure of the hernial defect, we are not satisfied with the apposition or approximation of the edges of the defect but overlap, imbricate the edges laterally or vertically. In some cases, it is necessary to excise the umbilicus so as to better overlap the aponeuroses. Fascia will unite with epimysium, perimysium and endomysium. The abdominal wall is drawn together like a double-breasted coat. This imbrication is not always possible. Nevertheless, in some way or other to cure the hernia, the defect must be closed. Postoperative hernias repaired with catgut have been known to break down within the first few days following operation. Close as much of the defect as possible with a running stitch of living or preserved fascia. Then insert a free sheet of fascia lata, living or preserved, into the remaining defect. Following this, a reinforcement lace-work suture line of fascial strips, living or preserved, is placed over the implant. Fascial grafts are preferably placed between the peritoneum and the endoabdominal fascia. Two patches of fascia may be placed in opposite directions, like a cross. A basket-work mat of fascia may be used to close the defect, the living or preserved fascia lata being laced in sock-darning way across the opening so as to substitute an effective barrier. The fascia lata leads to considerable fibrous tissue development. If preserved ox-fascia is used, it is well to soak it in warm saline solution for one or two hours so as to remove the alcohol.

Previous to the removal of living fascia lata from patient's thigh, prepare the latter aseptically from hip to leg. As two separate and distinct operative procedures are being simultaneously performed upon the patient, separate instrument tables should be arranged. With the use of a Masson fascia lata stripper, the whole procedure is simplified and the resulting scarring is minimal. If a long incision is made over the outer aspect of the thigh to secure fascia lata the resulting fascial defect on the thigh need not be sutured. The transfixion of the ends of the fascial strips prevents the unraveling of the ends.

CONCLUSIONS

1. All incisions of the abdominal wall impair its integrity and predispose to hernia formation

with all its associated discomfort and impaired efficiency.

2. The etiology, pathological anatomy, symptomatology and operative treatment of incisional hernias bear a great resemblance to the etiology, pathological anatomy, symptomatology and operative treatment of recurrent hernias.

3. By eliminating the etiological factors, mechanical, traumatic, infective, operative, post-operative, of incisional hernias, the incidence of this difformity and infirmity can be minimized; can be almost completely prevented.

4. Every case of incisional hernia calls for fascial fortifying of the path of escape of the hernial contents.

5. The use of autogenous living fascia lata transplants either as approximating sutures or as a substitute for hernial defects, has proven satisfactory, when employed with proper technique. A permanent bond of union and closure of the hernia results.

6. The use of the Masson "fascial stripper" facilitates the removal of autogenous living transplants and causes negligible and only minimal scarring of the thigh. This instrument is made to glide between the muscles and the subcutaneous fat, detaching the fascia and cutting it in desired lengths.

7. Ox-fascia lata, sterilized and preserved in alcoholic solution, can be used either as suture material or in sheets in the repair of post-operative hernial defects.

8. The use of ox-fascia eliminates the objectionable feature of an associated operation on the thigh. It has given highly satisfactory results.

9. After operative recovery the patient is to avoid increase in weight, hard work; in a woman, pregnancy for a time is to be avoided. All laparatomies, emergency laparotomies excepted, call for careful preoperative, operative and post-operative care. In all laparotomies secure, careful asepsis, careful hemostasis, careful anatomical approximation. Avoid mutilating anatomical incisions, and undue tissue tension. Avoid premature removal of sutures, and also undue haste in getting patient out of bed. Avoid all such conditions as unduly increase intraabdominal pressure.

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BASAL PULMONARY TUBERCULOSIS

OSCAR B. RAGINS, M.D., and ELLIS B. FREILICH, M.D.

CHICAGO

It is frequently asserted that basal tuberculosis is so uncommon that, for practical purposes, it does not exist. It is also said that persistent rales in the upper half of the chest are indicative of pulmonary tuberculosis, while rales in the

From the University of Illinois College of Medicine and Cook County Hospital.

lower half of the chest do not indicate tuberculosis.

A review of the literature on the subject is of some interest, as it shows the controversy that exists between various authors on the presence of basal pulmonary tuberculosis. Norris and Landis,¹ speaking about the differential diagnosis of chronic non-tuberculous pulmonary lesions, emphasize repeatedly that pulmonary tuberculosis is never primarily a basal condition. The fact that the physical findings are entirely limited to the base of the lungs excludes tuberculosis at once.

Fishberg² asserts emphatically that basal lesions in pulmonary tuberculosis patients are extremely rare. A lesion at the base while the apex is free should be considered as non-tuberculous, unless the sputum is positive for tubercle bacilli. Speaking about pulmonary tuberculosis in children, he clearly states: Chronic tuberculosis of the lungs in children of school age, when it does occur, affects the upper lobe almost invariably, and lesions of the lower lobes should not be considered tuberculous unless there are symptoms of toxemia and positive sputum."

Kidd³ quotes various authors who found pulmonary tuberculosis lesions primarily in the base in one out of 60-80 cases. He himself describes two cases of basal tuberculosis lesions out of 412 that came to autopsy.

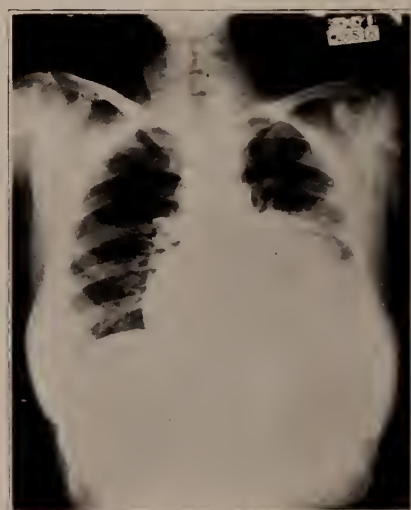
Middleton⁴ claims that findings of pulmonary tuberculosis may be overwhelmingly or entirely in the base. He admits, however, that such occurrences are the exception rather than the rule. Dunham and Norton⁵ believe that basal pulmonary tuberculosis is quite common in the negro and not uncommon in white persons. They reported 26 cases admitted to a 250-bed hospital during a period of two years with lesions confined exclusively to the lower lobe.

Pancôast,⁶ discussing the paper of Dunham and Norton, disagrees with the authors by saying that primary basal pulmonary tuberculosis is "frequently diagnosed by the more or less inexperienced, but is a rare manifestation of the disease. Jacob⁷ states that lower lobe pulmonary tuberculosis without apical involvement is a rare condition.

In a previous publication⁸ of an analysis of necropsy findings in 893 cases, we found that out of 482 cases of pulmonary tuberculosis there was not a single case recorded with tuberculous

pathological changes in the bases of the lungs exclusively without involvement of the upper lobes at the same time. This observation seemed to be rather outstanding, and we have decided to follow up this fact clinically. Out of some 1,500 admissions to the Cook County Tuberculosis Hospital we have encountered 12 cases with exclusively basal lesions. In only three out of these twelve cases, which report will follow, has the diagnosis definitely been established as basal tuberculosis lesions by the persistent positive sputum obtained.

Case 1. R. H., female, white, 31 years old, telephone operator, was admitted to the hospital in December, 1929, with cough, hemoptysis, loss of weight, low grade temperature, and occasional night sweats. A left phrenic exeresis was done. She was discharged July,

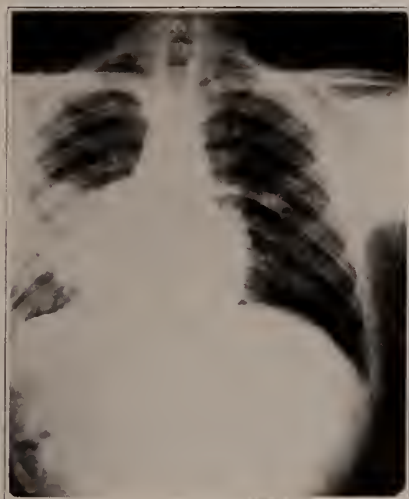


Case 1 before phrenicotomy.

1930, greatly improved and returned to work. She was re-admitted in February, 1933, with the complaints as above. On examination there was dullness in the left lower lobe posteriorly and in axillary region; bronchial breath sounds; and moist rales over the same area. X-ray showed density with a fairly well-circumscribed area of infiltration in lower third of the left lung. Course: Patient was under pneumothorax treatment for six months and was discharged in improved condition.

Case 2. S. D., male, colored, 24 years old, laborer, came into Cook County Hospital, with complaints of cough, bloody expectoration, chills, fever, night sweats, loss of weight, and pain in left chest of two months duration. Examination revealed impaired resonance and dullness in left base, somewhat diminished breath sounds, and moist rales. Temperature ranged between 97.6 and 101.4. Pulse ranged from 90 to 110. X-ray revealed a partial consolidation in the middle third of left lung resembling a lung abscess. Sputum was positive on first examination and was repeatedly positive

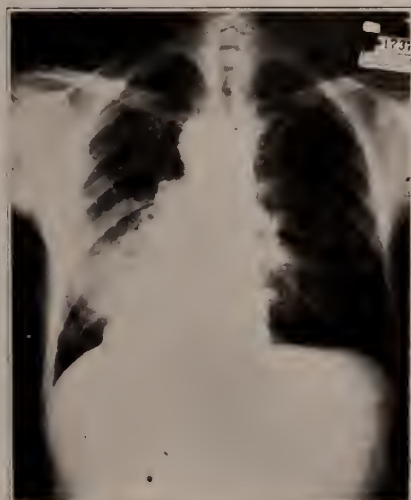
during his stay in the hospital. Course: Phrenic exeresis was done one month after his admission, resulting in a good rise of diaphragm. The patient was



Case 2 before phrenicotomy.

improving, but was found dead one morning, apparently as a result of a fatal hemoptysis.

Case 3. A. T., white, male, age 39 years, laborer, came in with complaints of cough and expectoration of foul, bloody sputum (about $\frac{1}{2}$ cup daily), pain in his left chest, and night sweats of three months duration. He had an appendectomy in the same hospital three months preceding the onset of the above complaints. On examination there was dullness in the left lower



Case 3 before phrenicotomy.

lobe and many crepitant rales. X-ray showed marked infiltration in the middle third of the left lower lobe. A lung abscess was suspected. Lipiodol injection, however, showed no filling of cavities. The sputum became repeatedly positive. Course: Pneumothorax collapse was unsuccessful. A left phrenic exeresis was performed and the patient began to show improvement.

Comment: To rule out pulmonary tuberculosis is one of the most difficult problems that confront the phthisiologist, especially in basal lesions. Tuberculous lesions in the lower lobes may closely resemble lung abscess, bronchiectasis, malignant growth, unresolved pneumonia, syphilis, and other non-tuberculous lesions. From the review of the literature, it seems that the most prevailing and just opinions are that pulmonary tuberculosis is very seldom exclusively located in the lower lobes. Nevertheless, one does not have to be dogmatic or have any fixed idea that because the lesion happens to be in the lower lobe exclusively that it is non-tuberculous. It is noteworthy that in the above reported cases, the first impression of the attending physician as well as the interpretation of the roentgenologist was that they were not cases of pulmonary tuberculosis, but of lung abscess and unresolved pneumonia. These impressions were strongly influenced by the fact that the lesions were exclusively basal. It is the persistently positive sputums that definitely established the correct diagnosis in these cases. The infrequency of basal pulmonary tuberculosis, however, is unquestionable, as our numbers indicate. It is probably merely a coincidence that in all our three cases the basal lesions were in the left lower pulmonary lobe only.

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MY EXPERIENCE WITH INTRAVENOUS INJECTIONS OF MERCUROCHROME IN ABOUT 400 CASES

ARTHUR P. MARTIN, M.D.

Clinical Associate in Obstetrics, Loyola University School of Medicine; Attending Obstetrician, Loyola University Dispensary
CHICAGO

Since Hugh H. Young first used mercurochrome intravenously in various infections there has been an enormous number of papers pub-

lished in connection with this bactericidal agent. In spite of some "spectacular" cures reported by individual observers the consensus of opinion at present as to the usefulness of this drug is distinctly unfavorable. The paucity of literature related to this subject in the past four years evidences the lack of interest of the medical world in an intravenous therapy which at first promised to be a veritable "life-saver."

In reading the various reports one is struck by the variability of the dosage employed. Most authors do not seem to have a definite idea as to the amount of drug they should inject. Occasionally they strike the correct dosage and obtain "extraordinary" results, whereas in most cases they use an insufficient dosage and fail utterly, for which failure they place the blame on mercurochrome. Others resort to mercurochrome when the patient is dying, that is, when his kidneys are entirely out of function and his myocardium completely degenerated. Within four to six hours after the injection the patient dies and the blame is laid again to mercurochrome.

The greatest fear of most physicians with regard to mercurochrome is that it may cause acute nephritis and consequently death. Therefore, they deny their patients the benefits of a medication which this paper is intended to demonstrate.

Over 12 years ago Hugh H. Young wrote: "Injected into the blood it was found to produce no irritation of the veins and practically no injury to the kidneys or other viscera in a strength of 10 mg. per kilogram in animals, and 5 to 8 mg. per kg. in human beings." Other experimenters who tested the toxicity of mercurochrome on animals arrived at similar conclusions.

As to the effects of this medication Hugh H. Young made the following statement: "General and local streptococcic infections were shown to be curable by this treatment. This was especially shown in a case of scarlet fever complicated by erysipelas, streptococcic sore throat, abscess of tonsils and glands of neck, and septicemia. Blood culture showed 38 colonies of streptococcus hemolyticus per cubic centimeter. The patient could not swallow, the temperature was 105 F., and he was drowsy and delirious. Erysipelas extended over the face and head. When this case was considered practically hopeless, the patient was given 15 c.c. 1 per cent. solution (equal to 7.5 mg. per kilogram). The transformation was indeed remarkable. Within a few hours he was conscious and drinking water; within twelve

hours the blood was found to be sterile. The infection of the throat, tonsils, glands of the neck, and the erysipelas disappeared completely within two or three days. The urine, which was infected and contained streptococci in large numbers, became sterile and the patient was discharged well in about a week.

In spite of the above-mentioned statements Hugh H. Young does not seem to recommend a dosage of more than 5 mg./kg. of body weight. This may be inferred from the following statements: "We still believe that a dosage of 5 milligrams per kilogram is desirable in fulminating cases such as septicemia." And in another paper: "In conclusion I wish to say as to the dosage we feel that in fulminating cases the large dosage of 5 milligrams should be used." As it will be shown in this paper this dosage is low and cannot always be relied upon to yield permanent results.

Another author, who does not attribute great importance to the dosage, states: "If results are forthcoming, they will occur as promptly with small doses as with one incompatible with the safety of the individual." This is an uncritical conclusion, as my observations will demonstrate.

I have used mercurochrome intravenously in various infections for the last nine years and have become more and more convinced about the usefulness and lack of toxicity of this drug. The number of cases treated now exceeds 400, and the results obtained are so gratifying that they should encourage others to try this therapy.

In order to give the reader a vivid picture of the reactions set up by mercurochrome—and at the same time remove his fears—some cases will be described with full details from the moment of the injection until the return of the temperature to normal.

Types of infection treated. Puerperal sepsis, acute peritonitis, septicemia, pelvic inflammations, gonorrheal salpingitis, posterior gonorrheal urethritis with prostatic involvement, gonorrheal epididymitis, prostatic abscess, gonorrheal arthritis, bubo, osteomyelitis, and pyemia.

Dosage used. A dosage of from 5 to 7 mg./kg. of body weight of mercurochrome was used. The results obtained indicate that success depends on the dosage. A dosage of less than 5 mg./kg. of body weight usually gives a temporary improvement, or fails utterly; a dosage of 5.5 mg./kg. yields satisfactory results in a large percentage of

cases; a dosage of 6 mg./kg. gives a high percentage of cures; a dosage of 6.3 to 6.5 mg./kg. may be relied upon to bring about a permanent cure in practically all cases. Rapidly fatal infections, such as streptococcic septicemia, acute peritonitis, etc., yield most readily and do not require a dosage of more than 5.5 mg./kg. of body weight, at least in most cases.

The dosage is not based on the absolute weight of the patient; his degree of adiposity must be taken into consideration. According to the amount of fat, $1/10$ to $1/5$ of the weight should be deducted. Thin persons should receive the full dosage corresponding to their weight.

Fluids should be restricted for six hours before the injection in order to prevent too great dilution of the mercurochrome in the tissues. No food should be taken for at least four hours before the injection.

Technic. Mercurochrome¹ in scales was used. It was dissolved in double-distilled water immediately before the injection. A concentration of 1% was used in most cases, but a concentration of 1:80 was used sometimes without any apparent difference as to the effects. The injection was given slowly in a vein of the arm, the patient lying down. Four to five minutes were usually required for the injection.

Reaction. The reaction begins within 45 minutes to one hour after the injection. It consists in the following manifestations:

Nausea and vomiting. Most patients vomit four to six times during the first hours. Some patients, even with a high dosage, vomited only once, or not at all, while others found vomiting one of the most unpleasant effects of the injection.

Diarrhea. Most patients had five or six bowel movements during the first six hours. In several instances persistent diarrhea with mucosanguineous discharge and tenesmus developed on the second day. This condition lasted 24 to 48 hours.

Chills. They usually usher in the reaction, and in most cases are very severe. They seldom last more than 15 to 20 minutes.

Fever. The temperature usually rises rapidly as soon as the chills are over. It reaches its peak within one hour and thirty minutes after the injection. It seldom exceeds 105 to 107 F. per

rectum. In one case it rose to 108.1 F. rectally. As soon as the peak is reached, the temperature drops rapidly, a drop of 3 degrees having often been noted in one hour. It returns to normal within 15 to 24 hours, according to the condition which has necessitated the injection.

Depression. Most patients experience a feeling of extreme depression.

Intestinal cramps. They are not constant. They usually appear twelve hours after the injection and may be relieved with one or two doses of 15 drops of laudanum.

Gastric intolerance. It begins about 10 to 15 hours after the injection and may last for 36 hours. Some patients cannot retain even fluids. However, the recovery from gastric irritation is complete. An injection was given to a patient suffering from duodenal ulcer in the dormant stage, and no relapse occurred.

Stomatitis and tonsillitis. Patients with bad teeth usually present a severe inflammation and softening of the gums. This condition may last over a week. Two patients developed acute tonsillitis on the third day.

The patients are instructed to clean their teeth and tongue and to gargle with a saturated solution of potassium chlorate for a few days.

Less common disturbances. Several patients presented patches of urticaria on the face immediately after the injection. A few patients had a slight tickling in the throat and coughed for about ten minutes after the injection. One patient who had a slight bronchitis at the time of the injection, complained of oppression behind the sternum and expectorated rose-tinted sputum for twenty minutes after the injection. One patient developed appendicitis 24 hours after the injection and was operated on; he had had previous attacks. Two patients developed a pustular eruption about the mouth.

A certain number of patients resumed their work on the next day, whereas others had to wait until the third or even the fourth day. One patient, in spite of a high dosage, worked as a waiter for five hours following the injection, but finally had to go home.

A large number of patients received the injection twice, and a few were given three injections at various intervals. The second or third injection, although of a higher dosage, did not always set up a more severe reaction than the previous one.

1. Considering a possible difference in the strength of the various brands of mercurochrome, the writer wishes to state that in all his cases he used the scales put up in sealed tubes by Hynson, Westcott & Dunning.

Effect on the infection. Some infections are more resistant than others and require a higher dosage. Even 6.5 mg./kg. of body weight may not be sufficient in some cases. A slightly higher dosage may be tried in these exceptional cases. All the above-mentioned types of infection finally yielded to an appropriate dosage.

The location of the infection has more importance than its virulence in regard to the action of the intravenous injection of mercurochrome; the greater the vascularization of the tissues involved, the better the results. Epididymitis has been found the most resistant type of infection; it has required the highest dosages and made it often necessary to repeat the injection. Gonorrheal vaginitis is not seriously affected and requires local treatments. Gonorrheal cervicitis is not always cured, and cervical applications with neutral acriflavine or iodized phenol (B.P.) must be used. Anterior gonorrheal urethritis in the male is only slightly affected. On the contrary, pelvic, peritoneal, and blood-stream infections seem to respond readily.

The pain subsides markedly within two to three hours and gradually disappears. It disappears less rapidly in epididymitis, even in cases of success. The swelling also subsides and disappears rapidly. Pelvic masses of the size of a fist melt away within 2 to 3 weeks. Diffuse infiltrations, as in parametritis, vanish rapidly. Gonorrheal salpingeal masses undergo a much slower resolution.

Effect on the organism. Mercurochrome seems to be remarkably free from toxicity and is rapidly eliminated. Urine voided about half an hour after the injection presented a faint tint of mercurochrome; the darkest specimen was voided within the first four hours. The urine of all patients was examined at various intervals after the injection, but no albumin was detected. Within the range of the above-mentioned doses mercurochrome does not seem to cause any injury to the kidneys or to any other organ. However, if the kidney function is seriously impaired, serious accidents might result from a deficient elimination of the drug.

CASE REPORTS

Puerperal sepsis with acute peritonitis following a cesarean section.

Mrs. M. R., primipara, 30 years old, had a low cesarean section after 48 hours of active labor, three vaginal examinations, and an artificial rupture of the membranes 27 hours before the operation.

About 30 hours after the section she presented a typical picture of sepsis with acute peritonitis: The abdomen became enormously distended and very painful; there was a continuous hiccup and vomiting, aggravating the abdominal distress; the temperature rose slowly but steadily. An enema was given, a rectal tube was inserted, the stomach was washed out, and pituitrin was administered, but to no avail. Within a few hours the patient became restless and felt very ill; she called for her relatives and the priest, feeling that she surely would die.

The injection of mercurochrome was given 40 hours after the operation — 5.8 mg./kg. of body weight. At that moment the temperature was 103 per mouth and the white cell-count showed 29,000 white cells. The following is a detailed description of the effects of the injection until the patient's temperature became permanently normal.

4:20 P. M. (30 minutes after the injection). The patient is still restless and complains of abdominal pains; hiccups, nausea, and vomiting continue.

4:30 P. M. Marked nausea and strenuous effort at vomiting.

4:35 P. M. (45 minutes after the injection). The chills begin; the whole body shakes and the teeth chatter. The patient is covered with blankets and a hot water-bag is placed at her feet.

4:45 P. M. The chills have reached their acme.

4:50 P. M. The chills begin to subside. The patient does not complain of abdominal pains. The nausea and vomiting are subsiding.

5:00 P. M. (1 hour and 10 minutes after the injection). The chills have stopped altogether. The patient feels warm. The blankets are removed, and an ice-cap is placed on the head. Emesis almost stopped.

5:10 P. M. (1 hour and 20 minutes after the injection). Flatus is passed with a strong whistling sound through the rectal tube. It is repeated four times, every three to four minutes. The distension of the abdomen is rapidly decreasing, and the patient experiences great relief.

5:20 P. M. Temperature per mouth 104.5 F. The patient is warm, but feels much better. She states that she does not feel any pains in the abdomen; she can flex her thighs without discomfort. The breathing is much easier.

5:30 P. M. Temperature 105 F. The abdomen is soft and only slightly sensitive to pressure. She vomits once more, but without distress.

5:40 P. M. (1 hour and 50 minutes after the injection). Temperature per mouth, 106 F. The patient is momentarily delirious. She complains of heat. Her pulse is 136. The breathing is good.

6:00 P. M. Temperature 104.5 F. Profuse perspiration. The patient feels much better; she is overwhelmed by her rapid recovery; she cannot believe that her abdomen is no longer painful. She hits her epigastrium repeatedly with both fists and declares triumphantly that "it does not hurt." The vomiting and nausea have stopped altogether.

6:20 P. M. Temperature 104 F. The patient feels much better. She smiles and remarks that "we cheated death."

6:40 P. M. Temperature 103.6 F. The patient urinates spontaneously for the first time since the operation; she voids 200 c.c. of urine presenting a deep orange hue. No albumin.

7:00 P. M. (3 hours and 10 minutes after the injection). The patient has a bowel movement.

7:15 P. M. Temperature 103.3 F.

7:40 P. M. Temperature 103.6 F. Second bowel movement.

8:10 P. M. Temperature 104 F. Third bowel movement. The evacuations are repeated every half hour to one hour, becoming gradually blood-stained.

1:00 A. M. (9 hours after the injection). Temperature 103.8 F. The patient is comfortable except for the bowel movements. No vomiting.

4:30 A. M. (12½ hours after the injection). Temperature 101.4 F., pulse 108.

8:30 A. M. (16½ hours after the injection). Temperature 100.4 F., pulse 110, respiration 26.

1:00 P. M. (21 hours after the injection). Temperature 100.6 F., pulse 88.

11:00 P. M. Temperature 101 F.

4:00 A. M. Temperature 101.2 F., pulse 83.

12:00 A. M. (44 hours after the injection). Temperature 99.8 F.

8:00 P. M. Temperature 101.4 F. pulse 100.

3:00 A. M. (59 hours after the injection). Temperature 98.8 F. The patient made an uneventful recovery with an occasional rise of the temperature one or two degrees above the normal. She went home 16 days after the operation. The involution was rather slow. Fluid extract of ergot, 15 minims every four hours, was given for 6 days.

A study of the leukocytic counts made before and after the injection is of great interest.

Just before the injection: 29,000 (lymphocytes 7%, polymorphonuclears 88%).

6 hours after the injection: 23,000 (lymph. 11%, polym. 82%).

20 hours after the injection: 18,500 (lymph. 9%, polym. 84%).

30 hours after the injection: 17,500 (lymph. 13%, polym. 83%).

3rd day: 15,000 (lymph. 14%, polym. 79%).

4th day: 13,500 (lymph. 16%, polym. 77%).

6th day: 12,500 (lymph. 20%, polym. 74%).

9th day: 11,500 (lymph. 21%, polym. 72%).

12th day: 9,500 (lymph. 22%, polym. 71%).

14th day: 8,500 (lymph. 25%, polym. 69%).

This case demonstrates to what extent the intravenous mercurochrome therapy may revolutionize the indications of cesarean section; if this therapeutic method is generally accepted, cesarean sections may be undertaken even after a prolonged test of labor, and the Porro operation will be rarely performed on a young woman.

A similar case, which was under the care of a colleague, was treated by mercurochrome intravenously. The patient, a primipara, had undergone a low cesarean section after 30 hours of active labor with the membranes ruptured spontaneously a few hours after the onset. She developed septicemia with acute peritonitis. She was given 5.8 mg./kg. of body weight of

mercurochrome. The events that followed are almost identical with those related in connection with the above-mentioned case. In this case also the abdomen collapsed in the most spectacular manner within an hour and a half after the injection, and the temperature fluctuated around 101 F. for three days before returning to normal.

Septicemia following the removal of a double pyosalpinx and an appendectomy.

Mrs. K. P., 27 years old, was operated on for a double pyosalpinx. Both tubes were converted into large, sausage-shaped tumors. While they were removed, a slight puncture occurred in one of the tubal sacs. There was very little dissection done. The uterus and both ovaries were found normal. A corpus luteum was in a state of complete formation on the left ovary. The pelvic cavity appeared normal. However, the peritoneum covering the sigmoid presented a lusterless, somewhat granular aspect. The appendix, although not inflamed, was removed. The incision was closed without drains. Normal saline was administered by hypodermoclysis, 1,000 c.c. immediately after the operation, and 1,000 c.c. more in the evening. On the next day the patient was able to drink water, not being nauseated at all. Nevertheless, she appeared toxic and complained that she felt ill. The temperature rose very slowly, but the pulse became rapid out of proportion to the rise of temperature. The breathing also appeared embarrassed.

About 36 hours after the operation the patient presented a typical picture of grave septicemia: She had an anxious look with dark circles under the eyes and dilated palpebral clefts; her hands were restless; there were fibrillar twitchings about the mouth; the tongue was dry and the lips parched; the breath had a sweet, fruity odor. As to the abdomen, it was only slightly distended, but rigid and slightly painful to pressure. There was no nausea, nor vomiting. An occasional hiccup was observed at rare intervals. The patient lapsed gradually into a dazed condition and on most occasions did not recognize her husband and sister. She answered questions with great effort. The pulse reached 130. The breathing was embarrassed, jerky, sighing and rapid (36 per minute).

The injection was given at 2:40 A. M., 41 hours after the operation—5.8 mg./kg. of body weight of mercurochrome. At that time the temperature was 102 F. per rectum, the pulse 130, and the breathing 38. The leukocytic count showed 19,000 white cells. The following is a detailed description of the effects of the injection until the temperature became permanently normal. *All temperature readings are per rectum.*

3:20 A. M. (40 minutes after the injection). The patient voids 150 c.c. of urine presenting a fluorescence characteristic of mercurochrome.

3:25 A. M. Nausea for one minute, but no vomiting.

3:35 A. M. (55 minutes after the injection). First chill of moderate intensity, lasting about one minute.

3:39 A. M. Second and stronger chill; the whole body shakes and the teeth chatter. The patient is covered with blankets, and a warm water-bag is placed at her feet. The chill lasts over one minute.

3:43 A. M. Third, violent chill, lasting for about five minutes.

3:47 A. M. (1 hour and 7 minutes after the injection). Flatus and a small amount (one ounce) of feces expelled.

3:50 A. M. The chills are subsiding. Temperature 103.4 F., pulse 153, respiration 34.

3:52 A. M. Another short and mild chill, lasting one-half minute.

4:00 A. M. (1 hour and 20 minutes after the injection). The chills have stopped altogether. The patient feels warm. The blankets are removed, and an ice-cap is applied to the head.

4:10 A. M. Temperature 104.6 F., pulse 147, respiration 30. The patient is quiet and comfortable; her eyes are rapidly losing the anxious expression; the breathing is quiet, slower, and almost silent.

4:15 A. M. Temperature 105 F., pulse 156, respiration 32. She vomits, for the first time, about 200 c.c. of greenish, bile-stained fluid. The abdomen is soft and only slightly painful to pressure; the flanks can be easily depressed.

4:28 A. M. Temperature 105.2 F., pulse 168, respiration 30.

4:32 A. M. Temperature 105 F., pulse 156, respiration 30. Slight perspiration is noted at the upper part of the chest. Slight nausea, but no vomiting.

4:40 A. M. (two hours after the injection). Temperature 104.8 F., pulse 150. The patient takes interest in things; she asks her husband to sit by the bed. The perspiration continues, but is not profuse.

5:15 A. M. Temperature 104.4 F., pulse 146.

5:45 A. M. (three hours after the injection). Temperature 104.4 F., pulse 146. A white cell-count made at this moment showed 15,400 white cells, a drop of 2,600.

5:55 A. M. The patient voids 50 c.c. of orange-tinted urine. She is very comfortable. Temperature 103.4 F.

6:15 A. M. (3 hours 35 minutes after the injection). First copious *bowel movement*, consisting of brownish, liquid feces of a very offensive odor.

6:35 A. M. Temperature 103.2 F. *Second bowel movement*, also copious and of a very offensive odor.

7:00 A. M. Temperature 103 F.

7:50 A. M. *Third bowel movement*, less copious and not so offensive.

8:10 A. M. (5 hours and 30 minutes after the injection). Temperature 102 F., pulse 130, respiration 28. *Fourth bowel movement* consisting of 50 c.c. of a slimy, mucous fluid. The patient is comfortable and dozes off at times.

9:00 A. M. Temperature 102.4 F. pulse 120, respiration 28.

9:50 A. M. The patient voids 75 c.c. of orange-tinted urine. No albumin found.

10:20 A. M. *Fifth bowel movement* consisting of about 100 c.c. of brownish mucous fluid. Temperature 102.2 F., pulse 120, respiration 22.

11:15 A. M. The patient voids 600 c.c. of orange-colored urine.

12:00 A. M. Temperature 102 F., *Sixth bowel movement*.

2:00 P. M. (11 hours after the injection). Temperature 101 F., pulse 116, respiration 26.

2:20 P. M. *Seventh bowel movement*, consisting of mucosanguineous fluid.

3:55 P. M. Temperature 101.6 F., pulse 116, respiration 24. *Eighth bowel movement*, consisting of 20 c.c. of mucosanguineous fluid.

4:00 P. M. *Ninth bowel movement* consisting of 25 c.c. of mucosanguineous discharge.

8:00 P. M. Temperature 100.4 F., pulse 98, respiration 26.

1:00 A. M. (22 hours after the injection). Temperature 100 F., pulse 94, respiration 24.

4:15 A. M. (25 hours 35 minutes after the injection). Temperature 99.6 F (rectally), pulse 88, respiration 24.

The temperature remained normal throughout the recovery, and the patient was discharged on the 13th postoperative day. It must be noted that the temperature returned to normal within about 24 hours after the injection and remained normal, whereas in the two cases of cesarean section it fluctuated about 101 for 48 to 60 hours after the injection before it became normal in a more or less permanent manner. It is indisputable that the large, slowly involuting uterus with its contents, which could not be entirely sterilized by the injection of mercurochrome, maintained the subfebrile temperature. As it was stated above, the bactericidal solution cannot affect seriously the microorganisms which lie beyond the reach of the bloodstream; therefore, it is reasonable to assume that the uterine walls were more or less completely sterilized, but the infectious products enclosed in the uterine cavity escaped more or less the action of the drug. However, the patients felt well, and the clinical picture was that of a mild endometritis for about three days following the injection. This demonstrates that a Porro cesarean section is not absolutely required in infected cases, whenever the intravenous mercurochrome therapy is applicable.

A study of the leukocytic counts in this case is as interesting as in the case of puerperal sepsis.

Before the operation: 9,150 white cells.

12 hours before the injection: 18,350.

Just before the injection (41 hours after the operation): 19,000.

3 hours after the injection: 15,400.

12 hours after the injection: 16,500. This increase may be explained by the recurrent bowel movements.

22 hours after the injection: 15,400.

35 hours after the injection: 13,250.

41 hours after the injection: 10,900.

67 hours after the injection: 10,450.

This case demonstrates to what extent this therapy, when accepted and properly applied, may revolutionize gynecological surgery; the mortality due to septicemia and peritonitis will be reduced to an incredibly low level, and the recovery from protracted suppurative processes will be amazingly accelerated.

It must be stated here that, if drains have been placed in the abdominal cavity, they must be removed just before or immediately after the injection, as they

cannot be sterilized by the antiseptic solution and may cause a relapse.

Acute septicemia and peritonitis following the rupture of a gangrenous appendix.

A young man of 23, under the care of a colleague, was operated on for ruptured appendix. He rapidly developed septicemia with peritonitis. The condition appeared hopeless. He received 5.8 mg./kg. of body weight of mercurochrome, the drains having first been removed. The sequence of events was almost the same as in the above-mentioned case.

Perforation of the uterus during a curettement for incomplete abortion at about three months.

Miss M. S., 30 years old, had a miscarriage at about three months; spontaneous, according to her statement. About one week later she was curetted by a colleague, who ran the curette through the anterior uterine wall and brought out a piece of omentum. The curettement was stopped immediately. Three hours later, as the internal bleeding became alarming, a laparotomy was performed. A rent, large enough to permit the introduction of the index-finger, was found just above the vesicouterine reflection of the peritoneum. It was enlarged with scissors to a point near the fundus, and the uterine cavity was entirely emptied of placental fragments. The rent and its extension were sutured and the abdomen closed after scooping out most of the blood clots. Two large cigaret-drains were left in.

The temperature rose gradually on the second day and about 41 hours after the operation it reached 104.8 F. rectally after a violent chill. Within 5 hours it dropped to 103.2 and stayed at that level. She did not appear toxic, and her tongue was moist. The abdomen was slightly distended but not definitely rigid. The right lower quadrant was distinctly painful to pressure.

The injection was given at 5:35 P. M., about 52 hours after the operation. The dosage was 5.4 mg./kg. of body weight, taking into consideration the loss of blood she had sustained before and during the operation. At that time the temperature was 103.8 F. rectally, the pulse 110, and the respiration 24. This case is related in detail in order to illustrate one of the most violent reactions that may occasionally be set up by mercurochrome.

All temperature readings are per rectum.

5:55 P. M. (20 minutes after the injection). The chills are beginning.

6:10 P. M. Temperature 104, pulse 124, respiration 25. Strong chill; the patient shakes. She complains of the pain in the right lower quadrant.

6:13 P. M. The chill becomes more intense; the teeth are chattering. The patient is covered with blankets and a warm water-bag is placed at her feet.

6:17 P. M. Temperature 104.5 F., pulse 185 (taken by stethoscope). The patient is excited and appears frightened. Respiration 42.

6:22 P. M. Temperature 105.1 F., pulse 180, respiration 46.

6:27 P. M. Temperature 105.7 F., pulse 180, respiration 46.

6:35 P. M. (1 hour after the injection). Tempera-

ture 106.6 F., pulse 168, respiration 44. The chills have stopped. The patient is quiet, but speaks with effort and appears tired.

6:40 P. M. Temperature 107.3 F., pulse 168, respiration 48. The patient feels warm. The blankets are removed.

6:45 P. M. Temperature 107.9 F., pulse 166, respiration 52. The patient is nauseated, attempts to vomit, but does not succeed.

6:53 P. M. Temperature 106 F., pulse 150, respiration 46. Profuse perspiration is noted. The patient is delirious for a few moments; she makes an attempt to get up and calls her mother.

6:58 P. M. (1 hour and 23 minutes after the injection). Temperature 108.1 F., pulse 160, respiration 44. The patient complains of some difficulty in breathing.

7:00 P. M. Flatus is expelled.

7:10 P. M. Temperature 107 F., pulse 162, respiration 42. The patient complains of pounding in the heart and appears highly frightened.

7:15 P. M. Temperature 107.4 F., pulse 158, respiration 40.

7:30 P. M. (1 hour and 55 minutes after the injection). Temperature 106, pulse 156, respiration 40. The patient feels better; she is no longer frightened and apologizes for having made "so much fuss."

7:50 P. M. Temperature 105.4 F., pulse 144, respiration 32.

8:00 P. M. Temperature 105 F., pulse 136, respiration 28. Drains removed.

8:10 P. M. (2 hours and 35 minutes after the injection). Temperature 104.2 F., pulse 130, respiration 30. *First bowel movement*, consisting of about 300 c.c. of offensive liquid feces.

9:30 P. M. (4 hours after the injection). Temperature 103.2 F., pulse 132, respiration 32. The right lower quadrant is not very sensitive to pressure. The abdomen is very soft. The patient feels much better.

10:15 P. M. Temperature 103 F., pulse 132, respiration 32. The bowel movements have not been accurately recorded. However, they were very frequent and gradually became mucosanguineous.

1:00 A. M. (7 and $\frac{1}{2}$ hours after the injection). Temperature 100.4 F., pulse 128, respiration 24.

6:00 A. M. (12 and $\frac{1}{2}$ hours after the injection). Temperature 99.6 F., pulse 90, respiration 22.

3:00 P. M. (21 and $\frac{1}{2}$ hours after the injection). Temperature 99.2 F.

The temperature remained normal for 5 days, until a stitch abscess developed. The sutures were removed and the temperature returned to normal again.

The reaction was rather spectacular in this case, but it terminated happily. It must be noted that in all four cases in which the patients were deeply toxic the reaction was the least unpleasant.

Gonorrheal salpingitis. All the cases of gonorrheal salpingitis (206) which were treated by this method cleared up entirely. However, in several instances the injection was repeated, and a cure was ultimately secured.

It is relatively easy to eradicate a gonococcal infection from the vagina and cervix by local applications, but all therapeutic efforts may prove futile if the infection has already ascended into the tubes. Gonorrheal salpingitis is not always a self-limited disease; it often has a tendency to persist for a long time. Therefore, any attempt to sterilize the vagina and cervix is likely to fail as long as the tubes remain infected. The intravenous mercurochrome therapy affords a most effective means in rapidly exterminating the gonococcus from the tubes and endometrium, which cannot be reached from below. However, it must be borne in mind that the endometrium and tubes are readily reinfected from the cervix, which is not always sterilized by the intravenous injection of mercurochrome. Therefore, an adequate treatment of the cervix is essential in order to secure permanent results.

The method used in these cases consists in intracervical applications of neutral acriflavine, 3 to 4 per cent. followed by a packing of the vagina with a 2% solution of the same drug. The applications are made every other day; in the meantime the patient takes douches at very low pressure with potassium permanganate, 1: 1,000.

In most cases an intracervical application was made and the vagina was packed, as indicated above, just before the injection. The packing was removed 4 hours later and the douches started as soon as the patient was able to take them. The patient should remain in bed for at least 4 days and keep her bowels open, so as to favor the absorption of the inflammatory products.

In about two hours after the injection the pains subside and gradually disappear permanently, if the proper dosage has been given. The patient may retain a slight discomfort due to adhesions, but the typical tubal pain of gonococcal infection is never felt again. The profuse uterine discharge which is usually seen when the gonorrheal infection has spread beyond the internal os, decreases markedly, and when the patient is re-examined a few days later, a slight cervical secretion is found, in which the gonococcus may be detected in most cases. As to the pelvic mass, it shrinks rapidly. It is undesirable to make a vaginal examination for at least two to three weeks after the injection.

The intracervical applications and the vaginal packings with neutral acriflavine are resumed as soon as the patient is able to come to the office.

The cervical infection is often stubborn; in one case the endocervix was scraped with a male urethral curette, after which iodized phenol (B.P.) was applied. On the other hand, some cases cleared up by means of vaginal douches with potassium permanganate only.

The following cases are selected as illustrations:

Miss D. L., 27 years old, contracted gonorrhea, which she mistook for "whites" and left untreated. Having missed two periods, she went to an abortionist and had her uterus emptied by curettement. This discharge became more profuse following the abortion, and a few days later she felt severe, colicky pains in the left lower quadrant. She also felt feverish and remained in bed for 4 days. As soon as she was able to go out, she consulted a physician and received treatments for 4 months. The discharge persisted the same, and the pains remained in the same location with periods of acute exacerbation. Finally the physician told her that the tube had to be removed, as she did not respond to the treatments. She did not relish the idea of an operation and decided to wait. I saw her one month later.

There was a profuse gonococcus-laden discharge from the uterine cavity; the urethra, apparently not inflamed, yielded on pressure a small amount of pus in which gonococci were detected. There was some tenderness in the left lower quadrant, and a sensitive mass could be felt in the left pelvic region. She received 6 mg./kg. of body weight of mercurochrome and went home. Four days later she returned to the office; there was a small amount of cervical discharge, in which gonococci were found. The tubal pain had disappeared. After a few treatments, as indicated above, the patient was discharged. She was seen at intervals for 3 years. There was no relapse.

Mrs. C. P., 25 years old, married one month, was seized with severe pains in the lower abdomen, especially in the tuboovarian regions, and her temperature rose to 103 F. She remained in bed and her condition improved within a few days. As soon as she resumed her usual activities, she had a relapse. When examined a few days later the patient presented a typical picture of recent gonorrheal infection of the uterus; the cervix was hot, swollen, and poured out a thick, tenacious discharge. Both adnexa were involved. She did not accept the injection, being afraid of the reaction. The next day she had another relapse and consented to have the injection. She was given 6 mg./kg. of body weight of mercurochrome and was instructed to take douches at low pressure with potassium permanganate as soon as possible. The pains subsided rapidly and gradually disappeared. After a few local treatments she was discharged. She never had a relapse and after five years of sterility she became pregnant.

Miss T. N., 22 years old, contracted gonorrhea, which she left untreated, not realizing that she was infected. She developed salpingitis on the left side. She had three severe attacks with colicky pains in the left lower quadrant. A bimanual examination revealed an orange-

sized mass in the left pelvic region. The right pelvic region was also tender, but no definite mass could be detected. The uterine discharge was profuse and contained gonococci. She received 5.7 mg./kg. of body weight of mercurochrome intravenously. The pains subsided within about 5 hours and gradually disappeared. Three weeks later the mass had almost completely vanished.

Mrs. R. W., 19 years old, contracted gonorrhea and rapidly developed bilateral salpingitis. She had severe pains and could not sleep without sedatives. The cul-de-sac was doughy and painful to pressure. The smears from the cervix and urethra were positive for gonococcus. She received 5.8 mg./kg. of body weight of mercurochrome. The reaction will be described in detail on account of a few interesting particulars.

The injection was given at 10:25 P. M. Temperature 98.6. Pulse 104.

10:40 P. M. Irritation in the throat and dry cough.

10:50 P. M. Slight oppression and difficulty in breathing. The cough is persistent and aggravates the abdominal pain. The patient is moaning.

10:55 P. M. The patient complains of prickling sensations all over the body, especially in the hands. Temperature 98.6. Pulse 104.

11:10 P. M. Chills of moderate intensity. Vomiting of greenish fluid.

11:15 P. M. The chills are stronger, but not very severe.

11:20 P. M. The chills are subsiding. Bowel movement.

11:30 P. M. The chills have stopped. The patient vomits again.

11:40 P. M. Temperature 102.2 F. Pulse 114. The patient vomits again.

12:00 P. M. Temperature, 101 F. The patient vomits again.

12:25 A. M. Bowel movement. Temperature 100 F. The abdominal pains are still severe.

2:15 A. M. Vomiting and bowel movement. The pains are still severe.

3:00 A. M. The patient falls asleep.

5:00 A. M. The patient awakes. She states that her pains have distinctly subsided.

7:00 A. M. Temperature 99 F. The abdominal pains had disappeared entirely. Bowel movement.

12:00 A. M. Temperature, 101 F.

6:00 P. M. (about 20 hours after the injection). Temperature, 98.

This patient presented a very mild initial reaction but was troubled with gastric intolerance and stomatitis for about four days. The diarrhea stopped within 24 hours after the injection. The abdominal pains never recurred. A few days later the cervical discharge was found negative, but the urethral discharge was still profuse and contained numerous gonococci.

Pelvic inflammations of non-gonorrheal origin. Three cases were treated successfully by this therapy. The following case is a good illustration.

Miss J. R., 26 years old, sought advice for a severe pain in the right lower quadrant. A painful mass was easily detected in the right pelvic region. The temperature was 102 F. per mouth and the white cell count

showed 14,000 leukocytes. After a few days in bed with cold applications over the affected area the pains subsided, and the patient resumed her work as a waitress. A week later she had a relapse and resorted to a consultation in a university clinic. There she was told that she had a pus-tube and needed an operation. On the following day she returned to the office. The same tender mass was found in the right pelvic region and her temperature was 101 F. There was a cervical discharge of moderate amount, in which no gonococci were found. She was given 5.8 mg./kg., of body weight of mercurochrome. The results were extremely gratifying; the pains subsided rapidly, and finally disappeared. Three weeks later, the pelvic mass had almost entirely disappeared. After a few local treatments she was discharged. She was followed for one year. There was no relapse.

Posterior gonorrheal urethritis with prostatic involvement.

This therapy was successfully applied to 125 cases of severe posterior gonorrheal urethritis, with prostatic involvement in most cases. The greatest number of these patients had frequent, painful, and often difficult urination, tenesmus and bleeding after micturition, chills and fever. The dosage given varied from 5.6 to 6.2 mg./kg. of body weight. Rapidly after the injection the dysuria, the pains, the bleeding, and the constitutional symptoms disappeared, or subsided markedly. The urine in the second glass became clear spontaneously within a few days. In a few instances it remained cloudy for more than a week. A few prostatic massages rendered it clear. No antiseptic irrigations of the posterior urethra and bladder were used in any case.

It must be stated here that if this medication is highly effective in posterior urethritis, it has little effect on anterior urethritis. Of course, the discharge is lessened in all cases following the injection, partly through suppression of the inflammation in the posterior urethra and partly through the destruction of the gonococcus in the submucosa of the anterior urethra. The epithelium of the anterior urethra is beyond the reach of the blood-stream and is not seriously affected by the drug. Therefore, the action of the intravenous injection of mercurochrome should be regarded as ending at the region of the compressor urethrae muscle, which is logically explained by the difference in the circulatory conditions prevailing in these two portions of the urethra.

Gonorrheal epididymitis. This method proved consistently successful in 60 cases of gonorrheal epididymitis, to which it was applied. In several instances the injection was repeated once or twice,

using a higher dosage each time, until a cure was ultimately obtained. The pain subsided rapidly but disappeared very slowly; the swelling also underwent a very slow resolution. In two cases the swelling, which had existed for over 2 weeks prior to the injection, formed an abscess about two weeks after the injection and opened spontaneously through the skin. The healing was extremely slow.

As it was stated above, gonorrheal epididymitis has required the highest dosage; 6.5 mg./kg. of body weight may not be sufficient in some exceptional cases.

Gonorrheal arthritis. In 5 cases of gonorrheal arthritis in which this therapy was employed a permanent cure was secured. However, it must be noted that this condition, relatively easy to overcome before the formation of extensive exudates in the articular and periarticular tissues, becomes very stubborn in advanced cases; the resolution of the inflammatory products, even after the death of the gonococcus, is discouragingly slow. The following three cases afford an excellent illustration:

C. L., a man, aged 24, contracted gonorrhea twice, and on both occasions developed a severe arthritis in the right knee. He received the injection (6 mg./kg.) within three days after the appearance of the pains, and the inflammation disappeared rapidly both times.

Mr. G. K., 38 years old, contracted gonorrhea and developed arthritis in the right foot, which became very swollen, heavy, cyanotic, and extremely painful. He received the injection—5.8 mg./kg. of body weight—27 days after the onset of the arthritis. There was considerable improvement, but two weeks later the pains became very severe again. After the lapse of two weeks a severe pain appeared in the left hip-joint. The injection was repeated with a dosage of 6.4 mg./kg. of body weight, three days after the onset of this new complication. The pain in the left hip joint subsided rapidly and gradually disappeared. As to the condition of the right foot, it showed much greater improvement than after the first injection; the swelling decreased rapidly, the pain subsided considerably, and the recovery progressed steadily. Two months later the patient was able to go out with the help of crutches. Within one year his foot became normal.

This case demonstrates beyond a doubt the value of high dosage.

Mr. J. F. 32 years old, contracted gonorrhea which gave rise to severe inflammation and swelling of the right wrist and hand. Within two days the patient was unable to flex his fingers. The temperature reached 101.8. He received 5.7 mg./kg. of body weight of mercurochrome. The reaction is here described in detail. All temperature readings are per rectum.

Injection given at 8:15 P. M. Temperature 101.8 F. Pulse 78.

8:45 P. M. Chills.

8:50 P. M. Chills increasing in intensity. Temperature 102.2. Pulse 120.

8:55 P. M. Chills subsiding. The patient complains of pains in the lumbar region.

9:00 P. M. Chills almost stopped. Temperature, 102.9. Pulse 118.

9:10 P. M. Slight chills recurring. Temperature 104.4. Pulse 110.

9:15 P. M. Chills entirely stopped. Temperature 105.7. Pulse 114.

9:20 P. M. Temperature 106.6. Pulse 120. Respiration 26.

9:30 P. M. Temperature 107.1. Pulse 126. Nausea. The patient rises to go to the bathroom. He passes orange-stained urine.

9:40 P. M. Temperature 107.6. Pulse 126. He begins to perspire.

9:48 P. M. Temperature 107.2. Pulse 120. The patient feels depressed and thirsty. He drinks two ounces of water.

9:55 P. M. Temperature 106.8. Pulse 114.

10:00 P. M. Temperature 105.9. Pulse 114.

10:15 P. M. Temperature 105.2. Pulse 108.

10:30 P. M. Temperature 104.4. Pulse 102. The patient feels comfortable.

10:45 P. M. Temperature 104.2. Pulse 102.

12:00 P. M. Temperature 104.

6:00 A. M. Temperature 100.8.

10:30 A. M. (about 14 hours after the injection). Temperature normal.

The pains in the wrist and hand subsided considerably within two hours after the injection. They increased slightly in intensity the next day. A heat lamp was used and the pains subsided again and gradually disappeared. The swelling disappeared within 10 days, and three weeks after the injection the patient was able to close his hand normally. There was no relapse.

It must be noted that this patient, in spite of the high fever he developed, felt relatively well throughout the reaction. He was not troubled with gastric intolerance or diarrhea, but suffered from inflammation of the gums for about 10 days.

Non-gonorrheal prostatic abscess. The following case was treated successfully:

Mr. A. K., 40 years old, sought advice for a severe lancinating pain in the prostatic region. He had also marked dysuria. The prostate was found swollen and tender. There was no urethral discharge. Opium-belladonna suppositories were ordered, and the patient was instructed to take hot sitz-baths. As the condition became worse, the patient received 5.8 mg./kg. of body weight of mercurochrome. The pain subsided rapidly and gradually disappeared. A few days later the prostate was found markedly reduced in size and very slightly sensitive to pressure. After a few prostatic massages the patient was discharged as cured.

Bubo. The following case was treated by this therapy with excellent results:

Mr. H. N., 36 years old, contracted chancroids and developed a bubo in the left inguinal region. He received treatments for six months from a urologist, but the infection kept spreading to other glands. The pa-

tient became discouraged and discontinued treatments. Two months later he consulted another physician, who treated him for six more months with light therapy and local applications, with utter failure. I saw him 13 months after the onset of the disease. The left inguinal region presented scars from previously incised glands, and deep, heavily suppurating ulcers. Two glands were swollen and tender. There were no chancre. The patient received 5.8 mg./kg. and was instructed to apply a 4% solution of mercurochrome to the ulcers. Within a few days the suppuration ceased, the swellings subsided rapidly, and the healing progressed uneventfully.

The temperature curve of this patient following the injection of mercurochrome is most unusual. After a transient reactional rise, which is not marked on the chart, the temperature returned rapidly to 101 F. but rose suddenly 16 hours later to 104.2 F. It dropped again gradually to 100 on the third day. It rose again to the neighborhood of 103 on the third, fifth, and sixth days, after which it fluctuated around 100 F. It became definitely normal, or almost, on the eleventh day, and the recovery from that moment on was steady and uneventful.

The particularity of this curve may be explained as follows: The pelvic veins were filled with infected

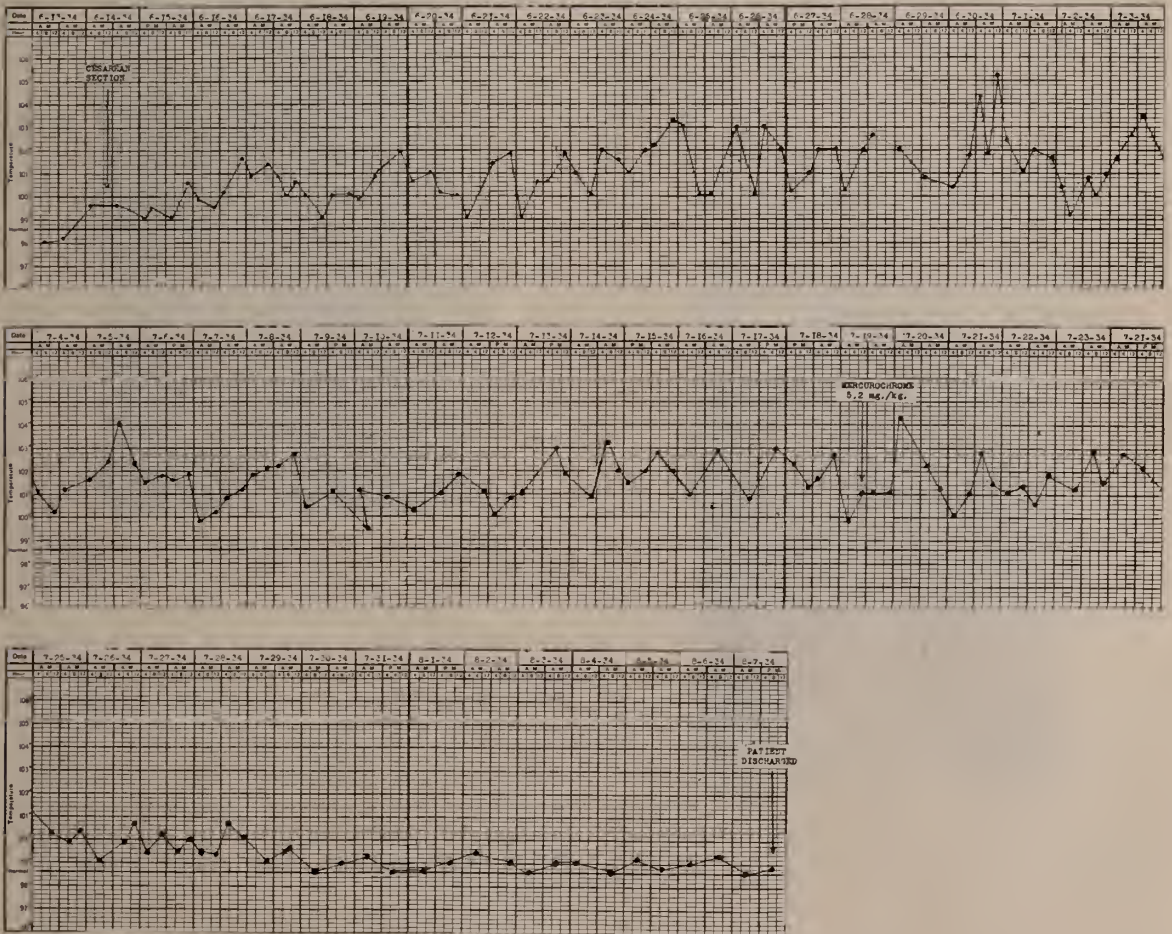


Chart 1. Mrs. H. B. Pyemia following a cesarean section.

Pyemia. A case of pyemia, under the care of a colleague, was treated with excellent results. It developed as a result of a cesarean section performed for central placenta praevia. The temperature chart, which is reproduced here, clearly indicates the time of development of pyemia following the section and the effect of mercurochrome on the course of the disease.

This patient received 5.2 mg./kg. of body weight of mercurochrome. The initial reaction was mild, and the temperature did not rise above 102 F. The chills presented a very moderate intensity. However, she was troubled with diarrhea for three days.

thrombotic material, which the mercurochrome could not penetrate and sterilize. Therefore, particles continued to be detached on the days following the injection, giving rise to daily elevation of temperature. However, the venous walls were sterilized by the drug, and, consequently, the main source of infection was eliminated. As soon as the thrombus became organized and the remaining bacteria destroyed by the bodily defenses the temperature returned permanently to normal.

The striking change in the course of the temperature after the injection of mercurochrome coincided with a remarkable change in the patient's condition. As soon

as the reactional disturbances were over, she began to feel decidedly better, in spite of the daily rise of temperature, and ate better, whereas before the injection was given she was rapidly losing ground every day.

It would not be amiss here, at least in order to demonstrate the fear that most physicians entertain concerning the use of mercurochrome, to mention that my colleague in charge of the case hesitated for 19 days before resorting to this medication in spite of my daily exhortations to do so. He finally resolved to "take a chance" after all hopes of recovery had vanished.

Osteomyelitis. Only one case was treated by this method. The results were very gratifying.

Miss H. P., 16 years old, had two operations for osteomyelitis in the past four years, one on the sternum and the other on the left tibia. Subsequently she developed a pain of varying intensity in the upper part of the right arm. Finally, the pains became very severe



Fig. 1. Miss H. P. Osteomyelitis. X-ray picture taken before the injection of mercurochrome. Oblong cavity in head of right humerus.

and the patient could not lift her right arm. She was taken to the surgeon who had performed the two previous operations. She was advised to keep the arm in a sling. As the pains became gradually more severe the girl was taken to another physician who ordered an x-ray examination. A cavity was found in the upper part of the right humerus. Rest and light therapy were recommended. The condition remained stationary with acute exacerbations of the pains from time to time. On August 20, 1933, the patient received 6 mg./kg. of body weight of mercurochrome. The change was immediate; within a few hours the pains subsided markedly, and on the very next morning the patient was able to raise her arm. She kept wearing the sling for about a month and at the opening of the school season

she was able to attend her classes. Two x-ray pictures were taken following the injection, one on October 9, 1933, and the other on January 5, 1934. They revealed a progressive healing of the necrotic area. Here are the Roentgenologist's reports:

Oct. 9, 1933. "Stereofilms of the right shoulder reveal a small circumscribed area of bone necrosis in the head of the humerus. A comparison of these films



Fig. 2. Miss H. P. Osteomyelitis. X-ray picture taken 4½ months after the injection of mercurochrome. Cavity almost obliterated.

with the examination made July 19, 1933, reveals the necrotic area to be much smaller in diameter, apparently having been filled in by new bone. Other features are similar to those reported on the last examination."

Jan. 5, 1934. "There is still evidence of a decrease in the size of the area of bone destruction, and apparently the healing process is continuing, but rather slowly. The shadows suggest that the new bone formation is almost complete. There is no evidence of a sequestrum."

Conclusions. Mercurochrome was used in over 400 cases with remarkable results. A dosage of 5 to 7 mg./kg. of body weight was used. Some infections were found more resistant than others and required a higher dosage. A rich blood supply of the region involved favors the action of this bactericidal agent. Blood-stream infections yield most readily. Virulent and rapidly fatal infections are most amenable to this type of treatment.

None of the patients suffered any injury. The reaction set up by the drug was extremely severe in some cases and very mild in others. The tem-

perature reached 108 rectally in some cases but it dropped rapidly, and, except for a transient delirium, the patients were none the worse for it. In many cases the temperature did not rise above 103 per mouth, but the results were not less satisfactory than in those that developed high fever. It is questionable whether a high rise in temperature plays any part in the elimination of the infection.

The leukocytic count fell rapidly following the injection of mercurochrome—at the rate of 1,000 per hour during the first hours. This contradicts the view according to which mercurochrome acts by stimulating the bodily defenses and increasing leukocytosis.

The present attitude of the medical world toward this invaluable therapy is unfair. It is to be hoped that these observations will encourage others to try it. Thousands of women die annually from puerperal sepsis, and the mortality in surgical services from ruptured appendices, acute septic peritonitis, and various septicemias is frightfully high. There is no doubt in my mind that the adoption of this therapeutic procedure will save numberless lives yearly.

55 East Washington St.

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SYSTEMIC BLASTOMYCOSIS WITH RECOVERY

HERBERT J. WING, M. D.

MAYWOOD, ILL.

Blastomycosis, although not a rare disease, is sufficiently uncommon to arouse the interest of any practitioner upon identifying the double walled cells in a sodium hydroxide smear. The abundant literature concerning yeast-like fungi is as confusing in classification as it is in therapy, so the following case is cited only as a report.

Case Report: A male patient, aged 39 years, complained of difficult urination, first noticed on Feb. 22, 1932, and becoming worse daily. There was bladder tenesmus and a thick creamy urethral discharge, which after further examination and questioning of the patient, was viewed microscopically in 10 per cent. sodium hydroxide. Large numbers of *Blastomyces* were found present in the urethral flow.

The past history brought forward a large variety of pertinent facts, the most significant of which are as follows: During the war, the patient was struck in the legs with fragments of shrapnel, and subsequent gangrene necessitated the removal of one leg about four inches below the knee. During the trip back to the United States, he noticed on the medial surface of his remaining leg, a flat, red swelling with a raised border and covering an area as large as a quarter. This lesion caused no discomfort, and after several months, slowly disappeared, leaving a very thin, deep purple scar. In the time intervening between his homecoming and March, 1931, there were no unusual signs or symptoms present. Early in March, 1931, he developed what he considered to be a mild bronchitis, but after a few days the cough became more severe and productive. There were night sweats, and rapid loss of weight of over twenty pounds. He entered a hospital where the x-ray revealed, he says, an involved area in the left lung about the diameter of a large orange and with a fairly regular border. The first diagnosis, according to the anamnesis, was tuberculosis. Unresolved pneumonia was also mentioned, and later in the period, carcinoma of the lung was considered.

About four and one-half months were spent in the hospital, during which time the "spot" in the lung became smaller and finally insignificant. Also during the hospital confinement, skin lesions of about the same description as the one formerly on the leg, appeared on the right gluteal region and right pre-auricular region. The facial lesion was excised during a visit subsequent to his discharge from the hospital, but he was not informed as to the precise nature of the infection and apparently no plan of treatment was advised.

No untoward symptoms were noted until the onset of the bladder involvement and urethritis in February,

1932, when the weight was noted at 131 pounds. Sodium iodide was given intravenously every other day, and a urinary dye was taken by mouth three times daily. The acute symptoms abated but did not disappear. The prostate became enlarged and the seminal vesicles greatly distended. Diathermy, using a prostatic electrode, increased the urethral discharge, and the prostate became smaller and softer.

During the middle of April, 1932, the left testicle became enlarged and indurated. The swelling increased and after a week had a mushy consistency. At this time, a mixture suggested by Castellani in one of his papers was prescribed. This consisted of one-half ounce of potassium iodide, and the same amount each of sodium bicarbonate, simple syrup and glycerine, the whole being diluted with distilled water to eight ounces. One ounce doses of this mixture were given three times daily, well diluted with water.

A left orchidectomy was done on May 3, 1932, leaving the proximal stump of the vas deferens free from ligature to promote drainage from above. Drainage from the wound continued for nearly three weeks when it rapidly subsided and the incision closed completely. General improvement was noted from that time on, the patient gaining weight and strength on resumption of employment. The potassium iodide mixture was continued with fortnightly rests of two days which proved sufficient to prevent recurrence of an iodide rash which appeared early in the course of the treatment.

A small facial lesion was removed from the left preauricular region, on June 30, 1932, and the gluteal area involved was excised on February 3, 1933, after several attempts at eradication by freezing, cautery, intense ultra-violet ray therapy and dyes. These wounds healed rapidly and cleanly. A gain of weight of twenty pounds occurred in one year following the onset of treatment.

Since recovery there have been no further signs of blastomycosis on the skin or in the urine, feces, or sputum. It might be added that the blastomyces were identified in microscopic sections of both skin lesions and testicle.

503 Main Street.

PRIMARY BRONCHOGENIC CARCINOMA WITH METASTASES:

Report of a Case

D. J. LOUIS, M. D.

CHICAGO

Mr. O. M., a German, fifty-eight years of age, was admitted to the Illinois Central Hospital on June 11, 1934. He weighed 250 pounds. He stated that he had been in perfect health until the death of his wife in 1932, since when he had not felt right. He began to have mild attacks of overpowering sleep, coming on occasionally at first, but becoming more frequent as time went on, and in the past month increased in

severity. During these attacks the patient has never fallen; he knows when they are coming on and seeks some place to sit or lie down. He can always be aroused. He has a tendency to go to sleep during excitement, such as when playing cards with friends, while talking to someone or at his work. During the attacks which last only a few minutes, he has no visual disturbances or convulsions. He states that if he could get relief from these sleepy attacks he would feel perfectly well because nothing else bothers him. He has had no cough, dyspnea, cyanosis, edema, palpitation, headache, vertigo, nocturia, abdominal distress, nor pain anywhere in the body. In other words, he has no complaint except this sleepy feeling. He has had no serious illnesses, injuries, accidents or operations. He denies venereal infection.

Physical examination revealed a semistuporous man, not acutely ill, who answered questions intelligently but slowly. Head, face, ears, nose and neck were entirely negative. Eyes showed slight exophthalmus. In the right upper lung there was bronchial breathing. No râles could be heard but breathing was harsh throughout the lung. There was no enlargement of the heart, no murmur, no arrhythmia. The abdomen was slightly tympanitic but no palpable mass was present. Blood pressure was 140/70 in the right arm, and 120/60, in the left.

Neurological examination revealed the following findings: Pupils were unequal but reacted to light and in accommodation. There was increased retinal pigmentation, slight pallor in the temporal portion of the left retina, sclerosis of all the retinal arteries but no choking of the discs. There were present a right facial paresis and some apraxia. Biceps reflexes were distinctly reduced on both right and left sides; abdominal cremasteric reflexes were negative. Romberg sign was negative, and there were no Hoffmann, Babinski, Oppenheim or Gordon signs.

Spinal fluid examination showed clear fluid, three cells per cubic millimeter, and negative Wassermann. Basal metabolic rate was 3+. Blood examination showed 4,800,000 erythrocytes, 7,500 leukocytes, and 95 per cent. hemoglobin, with a differential count of small lymphocytes 20 per cent., large lymphocytes 2 per cent., transitionals 4 per cent., neutrophils 63 per cent. and eosinophils 11 per cent. Urine was straw color, neutral in reaction, with a specific gravity of 1009, and contained no sugar or albumin.

Ten days after admission to the hospital the patient developed cough with bloody expectoration. Examination of the sputum showed many erythrocytes and leukocytes, few epithelial cells, but no tubercle bacilli or pneumococci.

He was treated with ephedrine, protonulcein, pituitrin and amytal, with no improvement. Sixteen days

after admission to the hospital the patient became suddenly unconscious and died the following day.

Autopsy was performed. The essential findings were as follows:

The right pleural cavity in the upper portion was completely obliterated by dense fibrous adhesions. The left pleural cavity was practically normal. The mediastinal lymph nodes were enlarged. The pericardium presented small, raised, gray-white areas. The peritoneal cavity was dry. The viscera were adherent to the parietal peritoneum in a few places by fibrous bands. The heart weighed 400 grams; there were no changes in the valves; the foramen ovale was closed; the descending aorta had several hard, calcified, yellowish plaques.

The right lung weighed 1150 grams, the left 700 grams. The right lung was adherent to the wall of the chest cavity and presented several raised, hemorrhagically discolored and grayish rounded areas about the size of a pinhead. The lung was firm and non-crepitant. The upper lobe contained many cavities, from which a hemorrhagically discolored mucoid and gelatinous material was readily expressed. There were no cavities in the middle and lower lobes. The trachea in the region of the right lung was held firmly adherent to the lung. In this region there were many grayish-pink and black lymph nodes. The open trachea and large bronchi revealed a massive tumor growth which originated at the junction of the trachea with the bronchi. This tumor was grayish-pink and granular; particularly in the region of the right bronchus it encroached upon the lumen to such an extent that it was almost occluded. On the right pulmonary surface of the diaphragm were several nodules resembling the tumor described on the trachea. The liver weighed 1850 grams. On the cut surfaces were small yellowish-gray areas surrounded by deep red areas.

The gallbladder was small and was held firmly adherent to the omentum by dense fibrous adhesions. The opened gallbladder was seen to have a thickened wall which was divided into several pockets in which were numerous calculi. The kidneys together weighed 500 grams. On the external surface of the right kidney were several grayish-white nodules. The capsule stripped away easily, except over these nodules. The left kidney resembled the right. The spleen weighed 200 grams and was firm. The pancreas was firm but showed no changes on cut surfaces. On the external surface of the esophagus were several grayish-white raised pinhead nodules. The remaining gastro-intestinal tract showed no change. The spinal cord showed no important change.

Coronal section through the brain revealed an irregular, yellowish-brown caseous mass in the tip of the left frontal lobe; in the next coronal section this mass occupied practically all the white matter of the left frontal lobe. The next coronal section showed a large oval mass directly connected with the corpus callosum and pressing on it so as to obliterate the right lateral ventricle. The septum pellucidum and the fornix were pushed to the right. The right lateral ventricle was

obliterated. The left hemisphere was larger than the right. The coronal section at the beginning of the pons showed a circular mass about 2 cm. This mass was in the parietal lobe and resembled the tumors seen in the lungs and kidneys.

Anatomical Diagnosis: Primary bronchogenic carcinoma arising at the bifurcation of the trachea with metastases to (a) the lungs and right pleura; (b) diaphragm; (c) tracheo-bronchial lymph nodes; (d) right inferior deep cervical lymph nodes; (e) mediastinal lymph nodes; (f) pericardium; (g) esophagus; (h) kidneys; (i) brain.

Caseous tuberculosis of the upper lobe of the right lung; caseous tuberculosis of the right tracheobronchial lymph nodes; acute tracheobronchitis; fat infiltration of the right ventricle of the heart; generalized arteriosclerosis; chronic passive hyperemia of liver, kidneys, spleen; hemorrhage in the medulla of the right suprarenal gland; chronic cholecystitis and cholelithiasis; old healed peritonitis; old healed pleuritis; cloudy swelling of liver, kidneys, and myocardium; moderate fibrosis of the myocardium and papillary muscles.

Comments. In an analysis of most of the series of cases of primary carcinoma of the lung reported in the literature, Hill¹ found that pulmonary carcinoma forms about one per cent. of all cases at necropsy, and more than eight per cent. of all malignant diseases discovered after death. The increase in incidence during recent years is probably largely relative. The disease occurs most commonly in the fifth and sixth decades of life and more frequently in men. The etiology is not clear. The distribution of metastases is characterized by the frequency with which the suprarenals (15 per cent.), kidneys (14 per cent.), and brain (more than 10 per cent.) are affected. In about fifteen per cent. of the cases there are no symptoms referable to the respiratory system. The average duration of life is about six months, though patients have been known to live several years.

Piayd² in a recent article states that the incidence of primary carcinoma of the lung in the Soviet Union has risen in the last two decades to as high as 11.8 per cent. of all carcinomas. He studied sixty cases confirmed at autopsy, and concluded that a definite diagnosis can be made by finding the cellular elements of the neoplasm in the sputum, in the pleural exudate, in the puncture of the neoplasm, or from a biopsy. He considers as valuable clinical signs early and repeated blood spitting, signs of compression of the neighboring organs, such as dyspnea, hoarseness, aphonia and dysphagia, and involvement of the regional lymph nodes, particularly of the

supraclavicular and infraclavicular groups. Percussion and auscultatory signs are variable depending on the location, the size and relation of the tumor to the large bronchi, as well as on the accompanying alterations, such as pneumonitis, atelectasis and bronchiectasis. He found that combination with active tuberculosis was extremely rare. Roentgenologic examination is of the greatest value and in the series reported was responsible for a high percentage of correct diagnoses.

Hirsch and Elliott³ reported a case in which the patient's chief complaint was intermittent sharp pain in the left side of the neck for five months, aggravated by rotation of the head, and occasionally radiating down into the left side of the back. Roentgen examination revealed a destructive lesion of the fourth cervical vertebra, with later involvement of the fifth and sixth cervical. A diagnosis of metastatic carcinoma was made, the primary tumor not being found. At autopsy the primary tumor was found to be a small warty thickening of the lining of a second division of the bronchus.

Jaffé,⁴ in 1929, called attention to the increasing frequency of carcinoma of the lung, stating that twenty-five years ago it was a rarity, while at the time of the report it was being found in ten to twelve per cent. of all lungs examined at necropsy in the Cook County Hospital. He felt that in these cases the carcinoma was not the first disease, that there was always something preceding it, such as syphilitic changes in the lung, pneumonia, bronchitis or abscesses. The greater frequency of chronic inflammatory conditions in the lung would rather help to explain the increased frequency of lung carcinoma.

What about treatment? Young⁵ has reported a case of primary carcinoma of the lung treated successfully by lobectomy. The patient was well two years after operation.

Rienhoff and Broyles⁶ have been employing pneumonectomy, partial or complete, in the treatment of carcinoma of the lung, and presented a preliminary report before the 1934 meeting of the American Medical Association.

The surgical treatment is still in the experimental stage and should not be attempted by anyone except an expert in the field of thoracic surgery. More important at present, is to develop a method of diagnosing lung carcinoma. Unfortunately, too often it is the symptoms arising from the metastases that bring the patient

to the doctor, and the primary tumor is not found until necropsy. In the case here presented the symptoms and findings were those of a brain lesion, and there were no complaints to attract attention to the lungs.

Conclusion. A primary bronchiogenic carcinoma revealed at autopsy, with metastases to pleura, lymph nodes, pericardium, esophagus, kidneys and brain.

Discussion of the literature on the subject.

9300½ Cottage Grove Avenue.

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HOW TO FACILITATE LABOR

S. D. SOTER, M. D.

CHICAGO

Labor, among primitive people still natural in their habits and living under conditions which favor the healthy development of their body, is short and easy, accompanied by few accidents and is followed by little morbidity.

The squaw of the Modoc Indian, a tribe that has been but little affected by the advances of civilization, suffers but an hour or even less in the agony of childbirth. Other tribes are somewhat longer, but not over two or three hours. Two hours being the average time among the North American Indians.

This is also true among the natives of Africa, Australian Islands, Southern India, and other savage people.

Those that have lived among Indians tell of the squaw who goes to pack wood in the winter, has a child while gone, wraps it up and places it on the wood and brings it back home without injury. While this may not be a common occurrence even with the Indians yet it serves to teach us how easy the process of childbirth is among people who live in perfectly natural state.

As civilization approaches, the time of labor is extended. The Mexican Indians, half civilized, require three to four hours for delivery and the same is true of tribes that are in closer contact with the whites. Accidents according to authorities rarely occur.

This may be accounted for by the active life which women lead among these people. The work is done by them, so that the frame and muscular system are developed and the fetus by the constant motions may be said to be shaken into the long diameter on which it best adopts itself to the maternal part and once in such a position it is held there by firm walls of the maternal abdomen and the birth becomes easy.

Another reason is that these people do not marry out of their own tribe or race and, as a rule, no extreme disproportions are to be found and the head of the child is well adopted to the pelvis of the mother, through which it passes.

The nearer civilization is approached, the more trying does the ordeal of childbirth become. To the women of the Green Bay Indian Agency, many deaths take place due to malposition. In this tribe a greater number of half-breeds is to be found and the resulting disparity between the child and the mother may be the cause of trouble. Dr. Williams has observed that the Pawnees are more exempt from accidents than the Menomonees, and he inquires whether this is on account of the squatting posture assumed by the former women. Angelenos ascribes it to the more active life led by the Pawnees, and the less frequent intercourse of the squaws with the whites.

As civilization makes its inroads, the difficulties of labor increase. People in the big cities intermarry regardless of difference in race or frame of body and the result is frequent disproportion between the head of the child and pelvis of the mother.

In addition the system of our people suffers from the abuse of civilization and the idle life they lead. The relaxed condition of the uterus and abdominal walls makes for a greater tendency to malposition.

The assistance which is rendered to the parturient women among the primitives is very simple and consists only of external manipulations. The patient is supported in whatever position she may be confined, combined with com-

pression of the abdomen for the purpose of expressing the child. There is no evidence of the primitive people doing any vaginal manipulation. The most reasonable of all the means of assistance is the steady compression of the abdomen. This method is still common in the red, yellow and black races.

Most of the backward races resort to expression in one way or another. The Finns in tedious cases, compress the abdomen by a belt or binder or by holding the patient up suspended and shaking her up. This method is used as a last resort by the natives of Mexico. In Syria some effort is made to support the perineum in the same manner as is usual with us. In Mexico they seek to overcome the tension by the introduction of the hands, and in India the parts are carefully anointed.

Little is known to these people of the assistance given by the abdominal muscles, a help that was recognized even in ancient times and was advocated by Susruta of India who limited the use of the muscles to the expulsion pains.

The influence of emotions, however, is thoroughly utilized as is evident by the incantations of the medicine man who is sometimes called in. These incantations no doubt play upon the imagination of the patient.

In Russia, India and America a sudden shock often is made use of, and is often effective in expelling the child. Some tribes have always a number of men with their guns in readiness, waiting near the bed of the patient. As soon as the midwife perceives the head distending the perineum, she signals the men who then fire, thinking to assist nature by the sudden fright.

Beside the incantations which are customary, as a last resort in difficult cases, there are a great many ridiculous superstitions in regard to labor and much nonsense is practiced with view of making labor easy. Thus in the middle ages the stars were consulted. Some people killed chicken and held the animal struggling before the parturient. In many rural districts in Europe often the priest is called to invoke the aid of God.

Although most primitive tribes have roots and herbs to which they resort in various diseases, they rarely seem to make use of them during labor.

This is the brief, modified story of childbirth among some of the primitives who are found in

natural state, as is given by Engelman, Witkowski and others. Can their mode of living and general behavior suggest anything to us whereby the ordeal of the modern women can be abbreviated? Ought we not follow nature's plan and not only abbreviate suffering but at the same time reduce morbidity and mortality? An ounce of prevention is worth, it is said, a pound of cure. Can we not by the proper physical development make labor a true physiological function? Or, once an atonic uterus or a slow acting one is encountered, can we not so utilize our specific drugs or some mechanical means to restore to its normal function and in that way shorten labor? The use of these agents I shall presently discuss, leaving out the use of forceps and Cesarean Section.

Prophylaxis. This work should begin before a woman is pregnant, and should not end when labor is over. From infancy to childhood the foundation of a healthy framework is built. Childhood diseases, malnutrition, rickets, scurvy, tuberculosis, osteomalacia, osteoarthritis, chronic constipation, leave their indelible marks upon the delicate structure that cannot be corrected in later years. The musculature, too, suffers from the ravages of some of these diseases resulting in muscular atony that is often responsible for a long labor.

In the age of adolescence during the years of rapid growth, lack of proper supervision, overactivity, child labor, improper and insufficient food, undermine and inhibit her natural growth. From this age on up to the age of womanhood, the evils of fashion take a tremendous toll. High heels that disturb the mechanics of the bony structure, lacing and tight corsets, lack of proper exercise tend to weaken the tonus of her system. These, together with the other frills of modern civilization, excitement, dissipation, abuses of sanitary rules and the ever increasing strain of modern society, tend to develop the women of today into a neurasthenic, pampered woman, a poor mother of children, who lives true to the Biblical curse when she goes to labor, and most often deprives her offspring from the God's given prerogative, that of Mother's milk.

DRUGS

Quinine. Quinine for many years has been credited with oxytocic properties, but there ap-

pears to be some difference of opinion as regards its efficiency when so employed.

Sollman in his text-book states that moderate doses of quinine stimulate, and high doses depress the contractions and tone of the uterus. Most of the authors agree that quinine has little or no effect unless the pains have started.

I have known women who have taken repeatedly as many as fifty grains in fractional doses in a period of an hour with the intention of producing abortion only to nourish a prolonged buzzing of their ears.

It is also a matter of common knowledge in malarial sections that quinine can be administered in therapeutic doses with no risk of producing abortion. Once, however, a woman is in labor quinine judiciously given often increases the uterine contractions. Williams claims that in secondary uterine inertia, the administration of fifteen grains of quinine sulphate by mouth, very often is followed by increase in the frequency and forces of pains.

De Lee in discussing uterine atony states that quinine should seldom be employed. He believes that quinine is often the cause of intra-uterine fetal death.

Fall claims that the deepest concentration of the quinine in the maternal blood after administration occurs about five or six hours. Deaths occurring fifteen to twenty hours after the administration of quinine cannot be ascribed to quinine.

Personally, I prescribe about four or five three grain doses at about fifteen minute intervals in the first stage of labor, in all of the cases where the pains are weak and irregular. From its use I have never witnessed any ill effect to the baby. I do believe that quinine is of service in combating uterine inertia once a patient is in labor. Its effect is generally perceptible within thirty-five to forty minutes and that this effect is more persistent with the use of quinine than the use of nasal pituitrin. Deaths of the fetus most often occur when quinine is used for the induction of labor.

Contraindications. The only contraindication is the patient with idiosyncrasy to quinine. I have had a patient who developed severe urticaria with generalized redness, itching and dyspnea about thirty minutes after administration of the drug. Her symptoms although alarm-

ing at first subsided in about two hours and the patient was delivered by podalic extractions, the case being a breach.

Castor Oil. The use of castor oil in promoting contractions when the patient is already in labor, need only be mentioned, to be condemned. It serves only to upset the patient's stomach, depletes her system and takes away a much needed strength.

Pituitary Extract. The use of pituitary extract in the first stage of labor given intramuscularly seems to be condemned by most writers. Pituitrin is likely to induce tetanic contractions from which both mother and baby may suffer.

In the second stage some accoucheurs give pituitrin when the powers give out. It must however, be given in small doses, not in my opinion to exceed that of 6 or 8 minims. The accoucheur should always be ready to use forceps or put the patient under anesthesia should the action of pituitrin produce any untoward effect.

Pituitrin is absolutely contraindicated in pre-eclamptic and eclamptic conditions. J. Hofbaur has witnessed violent eclamptic seizures attended with anuria for thirty-six hours following the injudicious use of pituitrin in hypersensitive edematous parturient. In these cases Hofbaur claims that pitocin, an oxytocic principle of the posterior pituitary, from which however the pressor principle is removed, may be used.

The nasal application of the pituitary extract has gained favor in the late years and it can be used with impunity in any stage of labor and often with excellent results.

If in any stage of labor the pains are found to be flagging, infrequent and short, a few drops applied with an applicator at the nasal septum and turbinate bones and continued, promotes, most of the time, severe prolonged contractions. In no case have I encountered tetanic contractions. This method possesses the advantage that the absorption is not so rapid and contractions can be controlled by withdrawing the applicator. It can be reapplied with no inconvenience to the patient. Pituitrin in general should not be used in cases of disproportion between the pelvis and the fetus and cases of malposition.

Thymophysin. About five years ago N.

Temesvary of Austria suggested the use of thymus and hypophysial extract combined for stimulation of uterine contraction. This preparation under the name of thymophysin is put up in ampules for intramuscular administration and is now in general use.

Since the year of 1928 many men have used it with varied success and a very extensive literature has accumulated on the subject.

According to many American and European observers, thymophysin should be used in the first stage of labor when the pains are weak and far apart. This drug administered during dilatation period produces strong rhythmical contraction, shortening labor. The effect of the drug registers in about three or four minutes after injection and unlike the pituitary, one observes according to William Ham who observed over 400 cases after the first reaction, strong normal pains lasting from thirty to fifty seconds and recurring at intervals of one to three minutes. This different action from the plain pituitary extract is produced by the presence of the thymus which seems to have a regulatory inhibiting effect upon the pituitary.

In the second stage of labor with very weak pains or no pain at all where the parturient may idle for hours and the attending man may be tempted to use forceps, its use is almost always spectacular in effect, terminating labor in a few minutes.

Thymophysin often acts when all other means fail. In two of my cases where the bag of water had ruptured for about 24 hours with no labor pains, and when all concerned were getting anxious, after using other drugs with no effect, the administration of thymophysin was followed with prompt results. In about three minutes contractions set in and labor terminated in less than forty-five minutes. It was my third case however, that convinced me that I was dealing with a very powerful drug.

To this case, a para four, confined at her home, who had very weak contractions and about 4 to 5 cm. of dilatation, one cc. of thymophysin was given. The dosage initiated a terrific contraction that lasted about six to eight minutes, and the baby was delivered with one steady pain, fortunately with no ill effect. From this time on I always use one-half of an ampule and never have had an accident.

In the early days of its use, it was recommended that one cc. of the drug be given. Now as we look back we see this amount which gives a pituitary potency, of ten international units in spite of the thymus present might cause excessive contractions. The use of small doses produces no harmful effect upon the child and the mother.

Lum demonstrated that the use of thymophysin did not increase the incidence of asphyxia but on the contrary by means of extensive statistics, he concluded that since the introduction of thymophysin at his clinic there has been a falling of the fetal mortality.

Personally, I use thymophysin in the first stage after the use of quinine and nasal pituitrin have failed to bring about the desired results. In the second stage if indicated, I always use thymophysin. I have used it in about 20 cases with no accident.

Contraindications. Thymophysin should not be used in cases where the cardiovascular system is not compensated. Der Brucke, in a recent paper shows the use of thymophysin in a series of sixty cases, all but four registered an increase in the systolic as well as diastolic pressure. The increase is there irrespective of the dose.

Also it should not be used in cases of disproportion between the fetus and the pelvis or in case of malposition.

Where regular contractions occur, thymophysin should not be used.

Mechanical Means. Various mechanical means have been suggested that may affect the contractions, such as, massage of the uterus, hot sitz baths, vaginal douches, tamponing the vagina, walking about, hot soapsuds enema, rupture of the bag of water, and posture. I shall only discuss the last four, the other methods being either not successful or dangerous. Hot soapsuds enema given at the beginning of labor at times is very effective and helps to increase pains.

Walking about is of a good deal of benefit in some cases and patients are often urged to walk until pains are well established.

Posture. Posture plays a large part in alleviating the agony of labor and the ordinary obstetrical position of today is by no means the natural one. In order to find the correct one, one must study the posture taken by women in

labor among savages whose movements are still governed by instinct. Although the semi-recumbent position is the prevailing one and is taught by the laws of modern obstetrics, nature does not seem to have designed that in this way she free herself from her burden. Savage people that are led by instinct rarely adopt the recumbent position and scarcely any resume a strictly horizontal position.

Squatting, although apparently inconvenient and repugnant to the refined woman, is certainly the most natural one for expulsion from the abdominal or pelvis viscera and will in many cases facilitate labor.

Twice after a long labor at home, I have decided to use forceps, before I did this, however, as a last resort I placed my patient in a squatting position and the most magic effect was produced. The head advanced rapidly and delivery was completed in practically one long pain.

The semi-recumbent position was by far the most frequent among the ancient, and especially by those who boasted of higher civilization such as that of Greece and Rome.

This position is now almost universal among civilized people and Engelman in an extensive study of this subject has reached the conclusion that the semi-recumbent position is the most correct one.

The one however, that is the most favorable, is that in which the patient resumes the dorsal decubitus with the head and shoulders raised to axis of the body inclined at the angle of about 45°. In the horizontal position the force of gravity apparently counteracts to some degree the expulsive effect of the mother.

Rupture of the Bag of Water. We have all been taught that dry labor means a long labor. It is an orthodox dogma. But most all of the orthodox dogmas are found to receive a shock sometime or other. The heretics who are always in our midst did not spare this orthodox teaching. The gold standard of the orthodox obstetrician seems to be attacked now from many sides.

Kreis in several articles in *Gynecology and Obstetrics* claims that premature rupture of the membranes occurs most often when effacement is normal. The bag of water, he maintains, is no longer considered an important factor in the natural process of dilatation and effacement.

The artificial rupture of the amnion is not only excusable but indicated because coincident with retardation of effacement the bag of water is one of the principal obstacles to dilatation of the cervix during labor.

Another heretic, Lyman W. Mason, ascribing to the above theory in an article published recently in the *American Journal of Gynecology and Obstetrics*, states that when the membranes rupture before or with the onset of pains in term pregnancies, both in primipara and multipara, the tendency is toward shorter labor. The proportion of long labors in the premature rupture cases is less than in those cases in which the membranes remain intact until the cervix is dilated.

There are many other advocates of the early rupture of the bag of water. Although I do not ascribe solely to this principal, I do believe that very often the rupture of the membranes is definitely indicated resulting in stronger contractions and shorter labor.

In order that this may be clear, let us study for a moment uterine action in labor. There are two definite uterine actions in labor. One is the active contractions of the fundus which after labor begins, gradually increase in strength, and the other a coincidental relaxation of the cervix. When both activities are perfectly co-ordinated there is a so-called, normal labor.

The factors influencing the strength of the uterine contractions include nervous inhibition by the sympathetic, proper working of the local cervical reflex, and possible endocrine secretions.

In the stimulation of the cervical reflex factor, the engaging and pressing fetal head is of importance. When the head is floating above the brim, pregnancy is often prolonged. In cases of occipital posterior labor is slow, not because of malproportion but because of feebleness of contractions. If the uterus acts strongly the head is flexed and rotated. The slow labor results in these cases because the position of the head on the cervix does not allow the head to fit into the cervix and thus exert its full effect on arousing the cervical reflex by which contractions may be stimulated.

If labor is delayed after presumable dilatation of the cervix one should always rupture the obstructing membranes. If in a patient after the application of stimulant, labor does not progress

satisfactorily, the bag of water may be ruptured for this often influences favorably the uterine contractions. In a normal pelvis and an ungaged head with no progress the artificial rupture is often indicated.

To Summarize: 1. People who live in a natural state suffer but little in the process of childbirth.

2. The proper rearing of children, a more rational living in the age of womanhood will make labor a true physiological function, thus freeing modern woman of the dread she has about labor.

3. The judicious utilization of our specific drugs and mechanical means will often shorten labor and alleviate useless suffering. It must be based on careful individual study by the attending man whose presence is required and not that of an attending nurse, as is often done.

55 East Washington Street.

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INTRA-ABDOMINAL HEMORRHAGE OF OVARIAN ORIGIN

H. N. RAFFERTY, M. D.

T. N. RAFFERTY, M. D.

ROBINSON, ILL.

Intra-abdominal hemorrhage of ovarian origin is, to judge from the literature, not common. However, it is the consensus of opinion of most

surgeons that it is encountered more frequently than the number of reported cases would indicate. Until about 1920 few cases had been reported. Since that time many others have found their way into the literature so that a review of all reported cases, compiled by Morton¹ in 1932 revealed a total of 93. Since then there have been two new cases added.^{2, 3} These, in addition to the one being reported here, bring the total to 96.

Hemorrhage of this origin may be any of four types:

1. From rupture of a true ovarian pregnancy.
2. From a ruptured "chocolate cyst," or endometriosis of the ovary.
3. From ruptured corpus luteum cyst.
4. From ruptured graafian follicle.

True ovarian pregnancy is, of course, very rare and need not be considered here. Rupture of a cyst of endometriosis does not produce massive abdominal hemorrhage and is more likely to be confused with acute appendicitis or twisted ovarian cyst.

Rupture of a corpus luteum cyst or graafian follicle, however, may produce an entirely different picture. The etiology is well described by Wilson as follows: "As the menstrual period approaches there is an increased flow of blood to the pelvic organs. This results in increased intraovarian tension and forces the maturing follicle toward the point of least resistance, the periphery of the gland. At a bloodless and thinned out portion of the surface of the ovary—the stigma—the follicle eventually ruptures intraperitoneally. The ovum is discharged and hemorrhage then takes place into the follicular cavity. In normal conditions a rounded clot is formed, filling the ruptured follicle but occasionally this does not occur and the patient shows signs of intraabdominal trouble. As the bleeding increases symptoms of shock combined with other signs of internal hemorrhage appear until, in certain cases, it is necessary to interfere surgically."

According to many authorities, the dividing line between physiological and pathological bleeding here is no more definite than that between normal and excessive uterine bleeding.

In regard to rupture of a corpus luteum cyst, trauma seems to bear a definite relationship in many cases. Some cases have occurred shortly following bimanual examination, so that the ex-

amination has appeared to be the causative factor. Also, any constitutional factor causing pelvic congestion would favor rupture of these cysts. In most cases, however, no etiological factor can be determined.

The symptoms presented will vary with the severity of the hemorrhage. Onset is usually sudden with pain in the lower abdomen. Nausea and vomiting are almost always prominent early symptoms. Other signs are principally those due to peritoneal irritation, i. e., generalized abdominal pain and tenderness and quite often pain in the shoulder or neck. Dulness in the flanks is often demonstrated but in our case was not present, probably due to a generalized diffusion of the blood through the intestinal coils.

Diagnosis is difficult and is rarely made prior to operation. The most common preoperative diagnosis for those cases of milder type, is acute appendicitis and for the type with massive hemorrhage, ruptured ectopic pregnancy. If the condition is kept in mind many more diagnoses may be made.

During the past year we observed one case which we diagnosed as such but because the patient was improving, she was treated conservatively and recovered without operation, so that the diagnosis was not proved.

Treatment will vary with the individual case and surgeon. Many cases will undoubtedly recover under conservative treatment. However, because one never knows how severe the hemorrhage may become, the treatment of choice is probably surgical. In our case salpingo-oophorectomy was done because the profuseness of the bleeding necessitated its immediate stoppage and this seemed quickest. In most cases simple suture or resection may be done and the ovary preserved.

Case report: Miss E. T., white, single, aged 20 years, had considered herself well until the present illness. The past history was negative excepting the usual childhood diseases. The family history revealed no findings of importance. Her menstrual periods had begun at 15, were regular, and of the 28 day type. She was menstruating at this time which was a ten day delay from the usual time. Dysmenorrhea had never been present.

The patient had returned home from a University on Friday evening, Dec. 21, 1934. During the evening she felt that she had fever but otherwise was well and slept well that night, arising at the usual time on Saturday morning. Shortly after finishing breakfast she complained of nausea and vomited several times. Coincident with this, she noticed a generalized abdominal pain which seem aggravated by body movements. These

symptoms continued essentially unchanged until one of us (T. N. R.) saw her at 1 p. m.

Physical examination revealed the following: Pulse 72, Temp. 98.8, and respirations 20. The patient was a well nourished white female, rather apathetic, who seemed not acutely ill. Examination of the head and neck gave normal findings. Nothing abnormal was found in the chest. The heart tones were of good quality, with normal rate and rhythm. The abdomen was flat. There was moderate tenderness over the entire abdomen, most marked at McBurney's point and over the region of the right kidney. There was no rigidity, and no other findings of importance.

Because of the uncertainty of the diagnosis, she was removed to the hospital where a leucocyte count revealed 22,000 cells. A catheterized specimen of urine was free from albumin, sugar, pus cells and bacteria. Two hours later the leucocyte count showed 23,000 with 92 per cent. polymorphonuclears, and a predominance of immature forms. The symptoms were essentially the same excepting an increase in tenderness at McBurney's point. The abdomen was slightly tympanitic to percussion and there was no dulness in the lower abdomen.

Exploration was decided on and the abdomen opened through a right rectus incision. Upon entering the peritoneal cavity a large quantity of fresh and clotted blood was seen, obscuring all vision. The abdominal incision was immediately lengthened to just above the pubis and the ovaries brought into view. A rather small rupture was seen on the posterior surface of the left ovary from which the hemorrhage was originating. The left tube and ovary were removed, the abdominal cavity cleared of blood and the abdomen closed. Twenty-five hundred c.c. of normal saline were given during the night and the usual measures taken for combating shock. The patient rallied well and made a nice recovery, leaving the hospital on the thirteenth day.

Comment:

1. Intraabdominal hemorrhage may have its origin in the ovary.

2. Symptoms, as a rule, are confusing, rendering an exact diagnosis difficult.

3. The finding of an intraabdominal hemorrhage in a young single female should bring to mind the ovary as the most probable source, providing the past history does not point elsewhere.

4. In the case reported the hemorrhage was presumably from a ruptured graafian follicle, although no microscopic study of the ovary was made.

209 West Walnut Street.

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CONDITIONS OF THE UTERUS NECESSARY FOR VERSION

A Physiological and Clinical Consideration

LOUIS RUDOLPH, M.S., M.D., F.A.C.S.

Attending Obstetrician, Cook County and Mount Sinai Hospitals

CHICAGO

Version and extraction has received a great impetus on account of the work of Potter¹ in recent years. The indications for its use have broadened, so that it appears to the author that a physiological and a "pathological-physiological" consideration of the status of the uterus for version, and version and extraction based upon the basic principles of the physiology of the uterine musculature during parturition may aid us clinically in determining, if the conditions present are safe for version. The greatest danger to be feared in turning the child in utero is rupture of the uterus, and this is the most important complication to avoid.

A review of the literature demonstrates the lack of knowledge of the basic physiology of the uterine musculature correlated to the clinical aspect of labor. The modern concept of the physiology of muscle has not been applied to the uterus. The author is convinced that this knowledge is essential in order to be able to interpret the clinical aspect of the conditions necessary for the performance of version, and version and extraction. The rupture of the membranes with the escape of the liquor amnii appears to be emphasized as a contraindication for version, while the author believes that this condition *per se* has been overemphasized as a contraindication.

The physiological and the "pathological-physiological" consideration of the uterine musculature during labor are the essential criteria to correlate its tonus state to clinical interpretation. The basis of uterine changes and function is dependent upon a uterine contraction as the unit of work to be accomplished by the uterus in bringing about the canalization of the lower pole of the uterus, and the expulsion of the ovoid from the birth canal. The status of the uterine musculature during a normal labor is dependent upon its physiological changes. Tonus, as applied to smooth muscle, is generally defined as a state of sustained contraction, which varies in duration and degree, and, though modified by, is usually maintained independent of nerve cen-

ters. Plain muscle may exhibit also, the phenomenon of rhythmical activity, that is, under proper conditions it may contract and relax rhythmically like heart muscle. The normal tonus of muscle is such that it has the properties of contraction and relaxation (property of elasticity).

A consideration of the uterine muscular changes demonstrates that certain physiologic changes take place with each uterine contraction. The thickening or permanent shortening of the muscle fibres of the upper uterine segment is called retraction; and the stretching or thinning of the muscle fibres of the lower uterine segment, is not a passive process, but is an active physiologic process.

During the first stage of labor the retraction of the muscle fibres of the upper uterine segment, and the stretching or thinning of the muscle fibres of the lower uterine segment go on in a synchronous manner until complete effacement and dilatation of the cervix results. At this stage the uterine segments have reached their physiologic requirements of retraction and the so-called passive stretching or thinning in bringing about the canalization of the cervical canal, and when this stage is reached the uterine musculature is in tone, that is, it has the property of being stretched (property of elasticity). A normal uterus, therefore, during the process of turning will sufficiently stretch in order to accommodate the temporary increase in the uterine cavity.

The second stage of normal labor leads to the expulsion of the ovoid from the birth canal. With each uterine contraction the two segments differ in their physiologic response. The upper uterine segment manifests further retraction, but in the lower uterine segment the so-called stretching or thinning does not continue to a significant extent under normal conditions, because the cervix uteri is completely effaced and dilated, and the fulcrum action of the lower pole of the uterus working against the fetal head is gone, and instead the pull is now primarily exerted on the attachments of the endopelvic fascia through the vaginal walls to the bony pelvis. When a uterine contraction is over the uterus relaxes in tone, but the upper uterine segment becomes thicker, while the lower uterine segment retains its second stage condition, the

uterine cavity becomes smaller which is compensated by the descent of the ovoid into the pelvic cavity, so that the birth canal remains approximately the same. With continued uterine contractions the ovoid descends and the mechanism goes on for the expulsion of the ovoid.

During the third stage of labor the uterus undergoes practically the same mechanism as in the second stage, but after the placenta is expelled the lower uterine segment undergoes retraction (thickening) which is observed during the performance of cesarean section after the placenta is removed from the uterine cavity.

During the second stage of labor the following problem arises, what determines the loss of uterine tone, the number of uterine contractions, or the number of hours in labor. The loss of uterine tone consists of two types: 1. Hypotonic. 2. Loss of tone due to mechanical factors.

Hypotonic, atonic or adynamic. The term inertia uteri is not a good descriptive term for this disturbed condition of the uterine musculature, because it gives the impression that the uterine musculature is structurally weak which is not the case. The underlying physiology of this condition is a disturbance of the conducting mechanism that controls the uterine contractions which may be neurogenic, neuromuscular, or myogenic, or a combination of the three. Rudolph and Ivy,² prefer to designate the so-called inertia uteri as a disturbance of the uterine physiology or uterine dysfunction because it specifically signifies that the underlying cause is a physiologic rather than a structural weakness of the uterine musculature. Therefore, this specific disturbance of the uterine musculature is physiologically called hypotonic, atonic, or adynamic which is included under the broad physiologic term of uterine dysfunction. This type of uterine dysfunction is met with during the first stage of labor in two types:

(a) The flaccid type which may be referred to clinically as inertia uteri in which the uterus is found to be flaccid or soft and is due to a temporary inhibition of the regulatory mechanism of uterine contractions. We have a uterus with either a slight or marked loss of tone in which traumatic rupture of the uterus may occur during a version.

(b) The tonic type of transitory tetani uteri

is due to frequent uterine contractions with no physiologic changes in the upper and lower uterine segments, so that no work is accomplished towards canalization of the lower pole of the uterus. Hence, we have a high degree of tonus of the uterine musculature in which the uterus will not give or stretch (property of elasticity) during a version, so that a traumatic rupture of the uterus may occur, but spontaneous rupture of the uterus will not occur.

The loss of uterine tone due to mechanical factors is referred to as a "pathological-physiological" state of the uterine musculature. This condition is the result of the uterus attempting to force the ovoid through the pelvis when associated with a cephalopelvic disproportion. The mechanical conditions are: cephalopelvic disproportion, i. e., contracted or deformed pelvis, malposition, malpresentations, and pelvic neoplasms; and oversized fetus, or some anomaly of the fetus which will cause a mechanical disproportion with a normal pelvis.

When the egress of the ovoid is prevented from descending into and through the pelvic cavity during the second stage of labor, the continued uterine contractions bring about a "pathological-physiological" condition of the two uterine segments. It is probable that in a physiologic second stage labor the lower uterine segment in all probability undergoes an insignificant stretching or thinning for the expulsion of the ovoid. But, when descent of the ovoid is prevented by any mechanical obstacle then the upper uterine segment undergoes excessive retraction in order to increase its expulsive force in overcoming the mechanical obstacle by moulding and compression of the presenting part. At some period, but we cannot determine how long or after how many uterine contractions, the lower uterine segment will maintain its normal tonus state, before the influence of retraction of the upper uterine segment will cause further stretching or thinning to set in. As the upper uterine segment undergoes excessive retraction, and the lower uterine segment undergoes excessive stretching or thinning, this continued action will go on until the lower uterine segment is so stretched or thinned that it loses its muscle tone (loss of elasticity). If this condition is allowed to continue it will lead to spontaneous rupture of the lower uterine seg-

ment, or to traumatic rupture of the lower uterine segment by any ill-timed intrauterine manipulations. When the lower uterine segment loses its tonus state then this "pathological-physiological" condition of the uterus is clinically known as threatened rupture of the uterus. When a diagnosis is made of threatened rupture of the uterus, and the indication is for a forceps delivery of pelvic application is preferable, because an attempt of a cephalic application may cause an increase in intrauterine pressure which may lead to a traumatic rupture of the uterus.

Recently Frey³ has studied the value of counting the number of uterine contractions necessary to complete a normal labor which was 150; and when 200 or more is reached the case is one of dystocia. Frey and Rufenacht⁴ discuss relative dystocia and have demonstrated that the first stage of labor necessitated from 151 to 200 uterine contractions; the second stage from 51 to 75 uterine contractions; and in funnel pelvis from 75 to 100. The entire labors took from 251 to 300 uterine contractions. This method gives us a criterion for physiologic consideration, but it is a difficult procedure for clinical use. A consideration of the cervical changes which correlated to our knowledge of the anatomic changes based upon frozen sections and cesarean sections is a more practical and scientific method of gauging the clinical course of the first stage of labor as Rudolph and Ivy² have demonstrated that the cervix during the first stage is the "barometer" of the physiologic motor activity of the uterus. In the second stage, I believe that gauging the clinical course by the number of uterine contractions is a dangerous method to rely upon, because for spontaneous birth associated with dystocia, Frey and Rufenacht found that it took from 76 to 100 uterine contractions during the second stage dystocia for spontaneous birth, but, if a version is attempted between 76 and 100 uterine contractions it does not assure us that the uterus is in tone or that it may be in a "pathological-physiological" state for version which may lead to traumatic rupture of the uterus.

We may accept these figures for the number of uterine contractions for eutocia and dystocia, but clinically we must evaluate the uterine contractions as being true or false. Now, dystocia in many instances will signify a prolonged first

stage labor, as being due to uterine dysfunction, but it does not signify that the number of uterine contractions in a case of normal cephalopelvic relation and a normal structural uterus will lead to rupture of the uterus. Winter⁵ writes that he concedes that Frey's observations are generally correct, but the advisability of an obstetric intervention should not be based on the number of uterine contractions in any given case. Therefore, we cannot determine the loss of uterine tone by the number of uterine contractions, since when the number exceeds 200, we must diagnose the contractions as true or false, because the uterine changes will depend upon the type of uterine contractions.

The time element is not a reliable criterion, because the uterine contractions during either the first or second stage of labor, may be at different times true or false.² The time element is indefinite on account of the variations in the physiologic response of a uterine contraction. We have no method in measuring the result of a uterine contraction, except by the Schatz-Unterberger method of the rising of the fundal ring (physiologic ring) or the cervical changes which Rudolph and Ivy² refer to as the "barometer" of physiologic motor activity of the uterus. This is illustrated in a case of prolonged labor of 100 hours. A given case in which the cephalopelvic relation and the position and presentation is normal. Labor sets in normally and the cervix is effaced and dilated to 3 cm., in a certain number of hours and then uterine dysfunction sets in for some hours. The patient is given sedatives and rests for some hours, when labor again sets in normally and the cervix dilates to 7 cm. and again uterine dysfunction sets in for some hours. This condition recurs a few times, the second stage is reached and we have a spontaneous delivery or a low forceps operation. In correcting the duration of the labor, we find that by subtracting the periods of uterine dysfunction the actual labor is about twenty hours, yet, from the onset of labor the patient had been in apparent labor for 100 hours. Therefore, the time element in a labor is of little value in determining the loss of uterine tone of its relation to rupture of the uterus.

The management of a given case when version may be indicated depends upon our knowledge

of the cephalopelvic relation which should be known during the prenatal supervision or shortly after the onset of labor, and the condition of the uterine musculature. The indications generally consists of relative cephalopelvic disproportion, malposition, malpresentation, high head with any vertex position when it is due to the failure of the formation of the final phase of the lower uterine segment,⁶ and any indication that may arise during the first and second stage of labor either on account of maternal or fetal conditions that make it imperative that the child be delivered.

When a version is indicated the accoucheur should ask himself the following question: Has the uterus sufficient tone (elasticity) to permit version? When performing version, we mainly fear rupture of the uterus, therefore, the criteria must be based upon our knowledge of the underlying uterine physiology and clinical experience.

I have indicated that the number of uterine contractions and the duration of labor is not a reliable gauge of the tonus state of the uterine musculature. A normal uterus will spontaneously rupture only in a cephalopelvic disproportion. Therefore, it is essential that we correlate our knowledge of the uterine physiology to the clinical course of labor during the first and second stage of labor.

The first stage presents itself to the underlying uterine physiology, because the cervix being the "barometer" of the physiologic motor activity of the uterus, we are able to correlate the uterine changes from the knowledge gained from frozen sections and cesarean sections of the different changes of the first stage in normal uteri. Therefore, since the uterus has not undergone abnormal retraction and stretching or thinning, we are assured that in a normal uterus the uterine musculature is in tone which signifies that the uterus will sufficiently stretch during a version, except when complicated by uterine dysfunction.

The underlying uterine physiology aids us clinically. When an indication arises for a version the uterus must be in tone. When performing a version the prerequisites are, surgical anesthesia, gauge the uterine contractions and turn the child between uterine contractions, because during the contraction phase of a uterine contraction the tone is increased, so the uterine

musculature will not stretch as much as during the interval. Cases may arise in which uterine dysfunction complicates the indication for version. This complication increases the danger of traumatic rupture of the uterus, but if this complication is present and an emergency arises for version, we may speculate that version may be successful under a deep surgical anesthesia, and slow turning of the child during the relaxation phase of a uterine contraction, but this procedure demands delicate obstetric experience.

The second stage is the *bete noir* of obstetric judgment in the conditions present for version. The uterine physiology discussed demonstrates that we cannot determine clinically the degree of retraction of the upper uterine segment; nor that the lower uterine segment has undergone abnormal stretching or thinning in the second stage of labor. We have no method of measuring or gauging the degree of retraction, stretching or thinning of the uterus that is bordering on the clinical signs and symptoms of threatened rupture of the uterus which knowledge is the key to the uterine changes, particularly the condition of the uterus to be evaluated in a version. A review of our knowledge of the uterus from frozen sections, and clinical observations during the performance of cesarean sections of the second stage of labor, with or without rupture demonstrates the physiological and "pathological-physiological" states, and the uterine physiology readily explains the sequence of the uterine changes, but clinically the knowledge is only correlated by our clinical experience of the second stage labor.

The dictum for obstetric interference in the second stage labor is usually given as two hours, but some advise waiting for from four to six hours. This indication for obstetric interference is supported by clinical experience. To correlate this clinical experience on the duration of the second stage labor is probably explained on the basis that the uterine physiology from two to six hours signifies that abnormal retraction and stretching or thinning does not take place, and the uterine musculature will sufficiently stretch during intrauterine manipulations for the performance of version. A review of the literature on spontaneous rupture of the uterus and my own experience demonstrates that ten hours is the minimum duration of the second

stage of labor before this tragic accident will occur, except when either the first or second stage of labor is complicated by pressure—necrosis of the lower uterine segment.

As we consider the clinical course of the second stage labor the knowledge gained from frozen sections, cesarean sections, and the uterine physiology, we realize that the borderline between a physiological and "pathological-physiological" second stage must be based upon clinical experience, but the underlying uterine physiology be borne in mind which will aid us in understanding the mechanism of spontaneous rupture of the normal uterus. The author believes that the "pathological-physiological" consideration before the signs and symptoms of threatened rupture of the uterus are present are the criteria upon which the conditions for version are based. When threatened rupture of the uterus is diagnosed we know the underlying "pathological-physiological" changes present contraindicate version. The signs of this condition are due to abnormal states of retraction, stretching or thinning of the uterus; and I believe that the symptoms are due to a state of "shock" brought about by the uterine changes which traumatize the nerves of the uterus and are relayed to the cerebrum in the same manner as shock is produced after trauma to any part of the body. The vagina is hot and dry, sensitive, and its walls are taut which is due to an excessive stretching of the vaginal walls, and this leads to a tetany of the vaginal walls, and interferes with the vascular supply, which causes chemical changes in the tissues. These tissues are weakened and account in some cases for rupture of the vagina alone, or the extension of the tear from the lower uterine segment.

The rupture of the membranes with the escape of the liquor amnii is not in my opinion a contraindication for the performance of version either in the first or second stages of labor. The liquor amnii is nature's hydrostatic protector for the fetal physiology. When the liquor amnii prematurely escapes the uterine walls comes in contact with the ovoid, but when a version is indicated the problem is, the tonus state of the uterine musculature. The physiologic consideration of the uterine musculature described with the membranes intact, also, applies to the uterine musculature with the

membranes ruptured and the escape of the liquor amnii. De Lee⁷ sums up this problem by stating, "It is impossible to lay down a set rule as to how long after the rupture of the membranes a version is still permissible. All depends on the degree of retraction and contraction." Which is the opinion of the author, and bearing in mind the underlying uterine physiology gives us a clearer understanding of the condition of the uterine musculature. A version may be more difficult, but it is not contraindicated.

The term impaction has a place in the consideration of version. A review of the literature has failed to enlighten me on what is really implied by impaction, and its clinical importance. I will discuss impaction from a clinicopathologic viewpoint. It cannot take place during the first stage of labor, because the ovoid does not descend and moulding of the presenting part into the pelvic cavity cannot take place as the ovoid is in utero. With the second stage of labor the movement of descent begins and the presenting part moulds itself to the pelvic cavity. In a normal cephalopelvic relation the normal flexed head will mould itself in the usual manner and with the least resistance is propelled through the pelvic cavity to a spontaneous delivery. In a deflexion attitude of an occipitoposterior position the fetal head will mould in the usual manner for that position, and the uterine forces will overcome the slight resistance of the pelvic cavity, and delivery will occur either spontaneously or aided by forceps when complicated by uterine dysfunction. If the deflexion attitude is such that it becomes a mechanical cephalopelvic disproportion due to a malpresentation, i. e., brow, chin, and asynclitism, the uterine forces will bring about excessive moulding of the fetal head in the pelvic cavity, and in the majority of instances the uterine forces cannot overcome the resistance of the pelvic cavity, so that the fetal head is impacted or cannot descend any more which will lead to rupture of the uterus on the same principles as in an absolute cephalopelvic disproportion, if neglected. In transverse presentation, if neglected, the shoulder is impacted deep in the pelvic cavity so that no descent can occur, which will lead to rupture of the uterus. Therefore, impaction should be specifically designated as a late second stage complication in which the

upper and lower uterine segments have undergone abnormal retraction and stretching or thinning respectively, which is or is bordering on threatened rupture of the uterus.

In view of the clinical and physiological considerations described the following conditions and contraindications will be given for version. We are leaving out of consideration extraction, because it implies a second stage procedure.

The conditions necessary for version are: (a) normal cephalopelvic relation. (b) Uterus in tone. (c) Cervical dilatation depending upon the type of version. (d) Child alive. (e) Surgical anesthesia.

The contraindications for version are: (a) Cephalopelvic disproportion. (b) Uterine dysfunction (inertia uteri and tetani uteri), constriction ring dystocia. (c) Malformations of the child (hydrocephalus, ascites, polycystic kidneys, and other types of monstrosities). (d) Threatened rupture of the uterus. (e) Impaction (brow, chin posterior, transverse presentation, and asynclitism). (f) Dead child, especially when associated with rigor mortis. (g) Previous cesarean sections, abdominal or vaginal, would be risky on account of the danger of the uterine scar rupturing. (h) After a prolonged test of labor of the anatomico-physiologic school⁸

Version During the First Stage of Labor: Version can be performed during the first stage of a normal labor, because the uterus is in tone. When the first stage is complicated by uterine dysfunction (inertia uteri and tetani uteri) great care must be exercised in performing version on account of the liability of traumatic rupture of the uterus. If this stage is complicated by uterine dysfunction sedation should be instituted until the normal tonus state returns, but if a condition arises on account of fetal or maternal indication version is performed under deep surgical anesthesia, the child is turned slowly, and between uterine contractions. Early rupture of the membranes with the escape of the liquor amnii in part or whole, the so-called dry labor, is no contraindication for version, because the uterus is in tone and will stretch to accommodate the turning of the child.

Version During the Second Stage of Labor: This stage is important because it is this stage in which tragic results can occur due to a misinterpretation of the condition of the uterine

musculature. I have pointed out that in a normal second stage labor the lower uterine segment does not undergo further stretching or thinning for the expulsion of the child from the birth canal. The literature refers to the lower uterine segment as being passive which infers that it is further stretched or thinned during the second stage of labor which Rudolph and Ivy² do not adhere to an account of their study of frozen sections, clinical (cesarean sections) and physiological grounds.

Therefore the problem arises in this stage, when does abnormal stretching or thinning of the lower uterine segment take place? The "pathological-physiological" changes of the uterus in dystocia have been described. The clinical experience of obstetricians demonstrates the duration of the second stage is from two to six hours before operative interference is indicated, providing no fetal or maternal indication arises for immediate delivery. The literature and the author's experience show that the minimum duration in which spontaneous rupture of the uterus has occurred is ten hours, except when complicated by a misdirection of the uterine force in normal presentation, abnormal presentations and hydrocephalus which will cause pressure necrosis of the lower uterine segment followed by spontaneous rupture of the uterus.

The management of the second stage of labor when version may be indicated consists of evaluating the physiology of the uterine musculature and clinical experience. I have pointed out that we cannot clinically determine the borderline atonic condition of the uterine musculature. Clinical experience demonstrates that the uterus is in tone from two to six hours in the second stage of labor, so since the uterus is in tone version can be performed. When the lower uterine segment begins to undergo abnormal second stage stretching or thinning, we have at the present time no method to determine this change, but clinical experience teaches that spontaneous rupture of the uterus will occur after ten hours of second stage labor. Therefore, since the cardinal condition of the uterus is the tonus state, I believe that the two to four hours second stage duration, preferably two hours, for operative interference is a safe rule for the termination of a given labor when version is indicated which will assure us that a normal functioning

uterus in this stage will sufficiently stretch to permit version.

A review of Potter technique for version,¹ and having had the privilege of seeing the Master versionist work has conclusively demonstrated to me the safety of version when performed under proper conditions which avoids traumatic rupture of the uterus. Potter performs his version and extraction as soon as the parturient is in the second stage of labor. Even if the station of the head is low in the pelvic cavity the version is easily done, because the uterine musculature is in tone and the uterus stretches to accommodate the turning of the child. His report of seventeen cases of rupture of the uterus⁹ demonstrates that the majority were due to the rupture of the scar from previous cesarean sections or the fact that the patients did not follow his instructions to enter the hospital as requested for obstetric management, but no rupture of the uterus occurred otherwise in his practice. The Potter technique is governed by definite uterine physiologic considerations, aided by chloroform surgical anesthesia which is safe for the mother relative to traumatic rupture of the uterus.

Summary: The consideration of the physiology of the uterine musculature demonstrates the basic knowledge underlying the function of the uterus during labor, and the necessity of correlating that knowledge to the clinical aspect of labor for the performance of version. By considering the tonus state of the uterus we are weighing the fundamental principles for the condition essential for version. When version is being performed the essential requirement is that the uterus must stretch in order to accommodate the turning of the child without injury to the uterine musculature. A normal uterus will permit version during the first stage, and the second stage until it reaches an abnormal state of retraction and stretching or thinning of the upper and lower uterine segments respectively which conditions are determined by clinical experience.

The clinical interpretation of the underlying physiology of the uterus during labor is determined by our knowledge of frozen sections, living physiologic states of the uterus observed during the performance of cesarean sections, and clinical experience based on spontaneous and traumatic rupture of the uterus. During the

first stage of labor the tonicity of the uterus is correlated by the condition of the cervix which is the "barometer" of the physiologic changes of the uterus, and clinical recognition of any complicating uterine dysfunction, and the position and presentation. The second stage of labor is dependent upon clinical experience and a knowledge of the literature in order to determine the borderline cases between the physiological and "pathological-physiological" condition of the uterus. The physiologic criteria presented clinically demonstrates we have no method of determining when the physiologic state (tonus) passes into the "pathological - physiological" state (atonus) except by correlating our physiologic knowledge to clinical experience based on rupture of the uterus. Since the duration of the second stage of labor for operative interference is suggested from two to six hours and ten hours is the minimum second stage labor that will bring about spontaneous rupture of the uterus, a clinico-physiologic consideration of this knowledge will aid us in deciding a safe time to perform version with safety.

The underlying physiologic condition essential for version is the tonus state of the uterus. I believe that version is a safe procedure in from two to four hours of second stage labor, preferably the two hour duration, because after two hours we should be able to evaluate the indication for operative interference. Under exceptional cases an experienced obstetrician may elect to do a version late in the second stage of labor. The complication of uterine dysfunction must be diagnosed in every case of version, as the knowledge of this complication will govern the technique of version.

CONCLUSIONS

1. A knowledge of the physiology of the uterus is essential in evaluating the conditions necessary to perform a version.

2. The tonus condition of the uterine musculature is the main condition necessary for version.

3. Version can be performed at any period of the first stage of labor, except when complicated by uterine dysfunction.

4. Rupture of the membrane is no contraindication for the performance of version.

5. Version is usually a safe procedure after

two hours in the second stage of labor.

55 East Washington Street.

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GLANDULAR PHYSIOLOGY AND THERAPY: THERAPEUTIC USE OF ESTROGENIC SUBSTANCES

Emil Novak, Baltimore (*Journal A. M. A.*, May 18, 1935), states estrogenic therapy is of little value in the treatment of endocrinopathic amenorrhea, although in many of these it is often resorted to because of the lack of any other treatment which is any more rational or any more effective. The weight of evidence indicates that in the treatment of menopausal symptoms, proper allowance being made for difficulties in the interpretation of the therapeutic results, the estrogenic substances are of real though variable value. The treatment of gonorrheal vulvo-vaginitis in children by means of injections of estrogenic substance is a promising method, though much more experience with it is necessary before worthwhile conclusions can be drawn as to the rapidity and permanence of the bacteriologic cure, and the possible harmful by-effects of the method. At present it seems that the treatment of hemophilia with estrogenic preparations will not live up to early expectations, though here again further experience with the plan must be awaited. While estrogenic therapy is at times employed for various other indications, as enumerated in the paper, the rationale is usually poorly defined and the results are ordinarily disappointing.

TREATMENT OF GONORRHEA IN THE FEMALE BY MEANS OF SYSTEMIC AND ADDITIONAL PELVIC HEATING

William Bierman and Edward A. Horowitz, New York (*Journal A. M. A.*, May 18, 1935), found that the combination of systemic temperature elevation with simultaneous additional pelvic heating constitutes a method of treatment rapidly effectual in gonorrhea in the female. Their work is based on the fact that the gonococcus can be killed by temperatures that are not injurious to body tissues. They treated twenty-three female patients with gonorrhea whose subsequent course they have been able to follow closely. Ten of these patients previously had local chemical treatment, which had failed to cause the disappearance of gonococci. Eighteen were complicated by salpingitis, six in the subacute and twelve in the chronic stage. These pa-

tients received an average of a little less than three treatments each. This caused the complete disappearance of gonococci in nineteen of the twenty-three cases. In two of the remaining four cases the gonococci disappeared from the cervix (after two treatments each) but persisted in the urethra, from which they disappeared after the coagulation of Skene's ducts. One patient with cervicitis, to whom a single treatment was administered, received a few subsequent applications of silver nitrate, which were sufficient to cause the disappearance of some persisting organisms. In one case, complicated by the presence of a severe gonorrheal proctitis, the organisms disappeared from the cervix and urethra but persisted in the rectum. A systemic temperature elevation of from 105 to 106 F. is produced by means of pelvic diathermy and phototherapy during a period of from one and one-half to one and three-fourths hours. With the use of a special vaginal electrode equipped with a thermometer, the vaginal temperature is maintained between 111 and 112 F. for three and one-half hours. A special arrangement of four dispersive electrodes is necessary. The treatment is painless but there is discomfort from the systemic fever. Constant watchfulness throughout treatment is imperative. The treatment is strenuous and patients with cardiovascular or pulmonary disease should not be subjected to it. No serious ill effects were experienced by any of the treated patients.

Society Proceedings

OGLE COUNTY

Ogle County Medical Society met at the Spoor Hotel, Oregon, Illinois, April 23, 1935.

Dr. James Carr, Chicago, gave a very instructive talk on Heart Disease, especially Congestive Conditions. This was followed by questions and discussions.

A business meeting followed with election of Officers:

President, F. G. Andreen, Rochelle; Vice-President, L. Warmolts, Oregon; Secretary-Treasurer, A. R. Bogue, Rochelle; Censor for 3 years, Joe Kennedy Deterich, Rochelle.

A motion made for the Secretary to write to Mrs. Brown of Mt. Morris a letter of condolence on the death of Dr. Brown, our President.

Motion made by W. E. Kittler and seconded by A. H. Beebe that the Ogle County Medical Society indorse the Proceedings of the Special Session of the House of Delegates of the A. M. A. held in Chicago, Feb. 15 and 16, 1935, the minutes of which were published in the Journal of the A. M. A. March 2, 1935. The report of these procedures was also published in the ILLINOIS MEDICAL JOURNAL of March, 1935.

At the same time the Ogle County Medical Society wishes to approve heartily the good work that is being performed by Dr. J. R. Neal and the Legislative Committee of the Illinois State Medical Society.

Motion approved by all present.

A. R. BOGUE, M. D., Secretary.

RANDOLPH COUNTY

The regular monthly meeting of the Randolph County Medical Society was held at the Illinois Security Hospital, Menard, Illinois, on April 24, 1935; the society being the guests of Dr. J. M. McManus, managing officer. This meeting establishes a tentative program proposed by the Illinois Department of Public Welfare to promote cooperation between the state and the physicians of each community in an effort to make available the resources of the state to the general practitioner. Forty physicians, as well as a number of State's Attorneys from the various counties of Southern Illinois were present.

Following a buffet supper, which was furnished by the hospital, there was a general discussion on the subject of psychiatry, with particular stress on the problems arising in the general practice of medicine and medico-legal phases common in the smaller communities. Three cases were presented by staff members of the Illinois Security Hospital and these cases were discussed by Dr. A. A. Low, assistant state alienist. In the future, either Dr. Low, or some other member of the alienist's division, will make visits to the various state hospitals of the state twice yearly, at which time it is hoped to have clinics for the benefit of the various county societies in those localities.

The Department of Public Welfare has also invited all physicians to make use of any clinical material in these institutions for the purpose of furthering psychiatric instruction and the principles of mental health in the different communities. The interest evidenced at this meeting by the physicians and lawyers present, and the different problems brought out in the discussions, indicate the cooperative attitude of the medical and legal professions toward this movement of the state institutions.

E. RALPH MAY, M. D., Secretary.

UNION COUNTY

A special meeting of the Union County Medical Society was held at the Anna State Hospital, Anna, Illinois, April 25, 1935. The speaker of the evening was Dr. A. Low, assistant state alienist. Dr. Low conducted a psychiatric clinic. He particularly stressed the differentiations between behavior disorders and borderline mental cases which the general practitioner encounters daily.

H. PHILLIPS, M. D., Secretary.

Personals

This issue of the JOURNAL carries the portrait cut of Dr. Charles B. Reed, President of Illinois State Medical Society, 1935-1936, as a supplement.

Dr. Albert E. Fritze, Chester, observed his fiftieth anniversary in the practice of Medicine, March 15.

Dr. John R. Neal, Springfield, a former president of the Illinois State Medical Society, has been named medical director of the Alliance Life Insurance Company.

Drs. Ruth Tunnicliff and George Milles, among others, addressed the Chicago Pathological Society, May 13, on "Effect of Dissociation of Streptococci on Their Fibrinolytic and Antifibrinogenic Activity," respectively.

Floyd S. Markham and Sion W. Holley, students in the Division of Biological Sciences, University of Chicago, have been awarded the Howard Taylor Ricketts Prize, which is given annually for the best results in research in either pathology or hygiene and bacteriology.

Drs. Willis C. Campbell, Memphis, Tenn., and John D. Claridge addressed a joint meeting of the Chicago Orthopedic Society and the Institute of Traumatic Surgery, May 10, on "Operative Procedures for Rupture of the Crucial and Lateral Ligaments of the Knee" and "Bilateral Traumatic Dislocation of the Hips," respectively.

Dr. George A. Zeller has retired as superintendent of the Peoria State Hospital, a position he had held consecutively since 1921; when the institution was being organized in 1898, Dr. Zeller was named superintendent but did not assume active charge until 1902, continuing until 1914, when he became alienist for the board of administration.

Speakers at the meeting of the Chicago Gynecological Society, May 17, were Drs. George de Tarnowsky, on tubal reimplantation; Henry Buxbaum, outpatient obstetrics; William A. Thomas, Edward D. Allen and Carl Philip Bauer, toxemia of pregnancy. The operative clinical meeting was held in the morning of the same day at St. Luke's Hospital.

Dr. Timothy Leary, professor of pathology, bacteriology and medical jurisprudence, emeritus, Tufts College Medical School, Boston, delivered the eleventh Ludvig Hektoen Lecture of the Frank Billings Foundation at Thorne Hall, Northwestern University, May 24. His subject will be "Arteriosclerosis, the Important Form of Arteriosclerosis, a Metabolic Disease."

An enlarged photograph of the late Dr. Charles A. Parker was presented to the Chicago Orthopedic Society by Dr. Daniel H. Levinthal at a meeting, April 12. The portrait was donated by the Huey Company to Dr. Levinthal for the society. It will be hung in the children's ortho-

pedic ward at Cook County Hospital, where Dr. Parker worked for many years. Dr. Parker died July 16, 1934.

The Leslie Dana Gold Medal of the National Society for the Prevention of Blindness was awarded to Dr. William H. Wilder, emeritus professor of ophthalmology, Rush Medical College, Chicago, at ceremonies in St. Louis May 18. Dr. Wilder was selected for the award, given in recognition of his work in the conservation of vision, by the national society in cooperation with the St. Louis Society for the Blind, one of whose directors is the donor of the medal. Dr. Wilder, a graduate of the Medical College of Ohio in 1884, served as professor of ophthalmology at Rush from 1907 to 1926. In 1907-1908 he was chairman of the Section on Ophthalmology of the American Medical Association, in 1918 president of the American Ophthalmological Society and in 1931 president of the American Academy of Ophthalmology, and Otolaryngology. At present he is secretary of the American Board of Ophthalmology and vice president of the Illinois Society for the Prevention of Blindness. He has written many articles on ophthalmic surgery and has collaborated in several books dealing with his specialty.

Dr. O. B. Nugent gave his illustrated lecture on India at the Eastern Star Chapter, May 10, and at the Fort Dearborn Camera Club May 17, and read a paper on "Corneal Ulcers" at the North Dakota State Ophthalmological Society meeting May 28. He was the speaker at the banquet that night and showed his motion picture "Primitive India." On May 26 he lectured on "Palestine" at the Methodist Church in Minot, N. D.

Dr. Max Thorek was guest speaker of the Surgical Section of the Oklahoma State Medical Society at Oklahoma City on May 14. He spoke on "Electrosurgical Obliteration of the Gallbladder," and on the 15th before the General Assembly on "Modern Trends in Surgery."

Dr. Percy H. Swahlen of St. Louis, Mo., addressed the Union County Medical Society May 2, 1935. His subject was "The Kidney in Obstetrics."

The DuPage County Medical Society was addressed, May 15, by Dr. Leon Unger on "Allergy with Special Reference to Recent Advances in Hay Fever."

Dr. Max Thorek addressed the staff of the

Burlington Memorial Hospital and members of Rock County, Racine County and Kenosha County and Milwaukee Medical Societies at Burlington, Wisconsin, May 7, on the subject of "Electrosurgical Obliteration of the Gallbladder Versus Classical Cholecystectomy."

News Notes

—The Chicago Tuberculosis Institute held its annual meeting, May 10, with a program, including, among others, Dr. Midian O. Bousfield, speaking on "Tuberculosis and the Negro," and Max Biesenthal, "Thirty Years of Work in Tuberculosis."

—H. 863 proposes to limit the sale of appliances, articles, drugs or medicinal preparations intended or having special utility for the prevention of conception or venereal disease to persons licensed by the department of registration and education to sell them.

—Phenolphthalein Research, Inc., is an organization of manufacturers and those interested in the distribution of phenolphthalein to develop facts regarding this drug. The research will be carried out under a grant to the University of Illinois College of Medicine and in other institutions.

—There were 47,850 births reported in Chicago in 1934 as compared with 46,655 in 1933, according to the *Chicago Tribune*. This is the first year since 1898, it was stated, that the birth rate has increased over the previous year. The report points out that the birth rate of 13 per thousand of population recorded in 1933 was just half of the rate (26 per thousand) in 1904.

—The University of Chicago has received a gift of \$243,000 from the Rockefeller Foundation, of which \$168,000 will be used to establish a department of psychiatry in the medical school for research into the causes and cure of mental diseases. It is planned to open the new department, July 1. The remaining \$75,000 will be used to aid the university's research in the humanities.

—The state health department announces a total of 2,572 deaths from motor vehicle accidents in 1934, the highest annual number in the history of the state. The mortality rate was 32.6 per thousand of population as compared with 29.5 in 1930, the previous high record. Collision with other motor vehicles and with

fixed objects such as telephone poles and bridge abutments accounted for the greatest proportionate increases in fatal accidents last year. The department reports that running down pedestrians accounted for almost half the fatal accidents, a total of 1,249.

—S. 363 proposes to enact a new chiropody practice act. It proposes to permit a chiropodist, by any means or methods, to diagnose, recommend or prescribe for any ailment or supposed ailment of the human foot by local medical, mechanical or surgical treatment, including general manipulative massage, whether manual, mechanical or electrical. A chiropodist is not to amputate the foot or toes, use anesthetics other than local, or use drugs or medicines other than local anesthetics.

—S. 408 proposes to prohibit the manufacture of cosmetics, medicines or drugs without a license from the department of agriculture and the payment of a fee of \$2,500. The department is to investigate the contents and ingredients of the cosmetics, drugs or medicines manufactured by the person applying for a license, and if it finds that the articles are adulterated or that any statement in the application is false or misleading or that the brand, name, or any label or advertisement of the product gives a false indication of origin, character, composition or place of manufacture, it may refuse to license the applicant.

—H. 937 proposes a system of compulsory and voluntary sickness insurance. The benefits proposed consist of cash and all forms of medical and dental service. Persons employed at "other than manual labor" and receiving wages in excess of \$60 a week, farm laborers and persons employed by an employer having less than three employees in personal or domestic services, are excluded from the compulsory insurance of the bill but are entitled to participate in the voluntary insurance.

Marriages

ROBERT E. BEDARD, Rochester, Minn., to Miss Margaret Guertin of Kankakee, April 22.

SAMUEL J. BURROWS, Chicago, to Miss Margaret Palmer of New York, April 24.

CODY A. COX, Morton, Ill., to Miss Helen Jane Beitel of Aurora, March 13.

JAMES W. DAVIS, Dongola, Ill., to Miss Marie Keily of St. Louis, Nov. 28, 1934.

Deaths

JOHN GENAR ASH, Mount Sterling, Ill.; Kentucky School of Medicine, Louisville, 1896; member of Illinois State Medical Society, aged 66; died, March 17, of lobar pneumonia.

ALBERT MILTON BEAL, Moline, Ill.; Drake University Medical Department, Des Moines, 1894; a Fellow A. M. A.; formerly a lawyer; president of the Western College, Toledo, Iowa, 1890-91; at one time mayor of Toledo, Iowa; for many years president of the board of education of Moline and bank president; on the staff of the Moline Public Hospital; aged 81; died, April 3, of coronary thrombosis.

CARROLL REID COPPLE, Keyesport, Ill.; National University of Arts and Sciences Medical Department, St. Louis, 1914; served during the World War; aged 42; died, April 19, of pulmonary tuberculosis.

ALBERT ELLSWORTH FROM, Belvidere, Ill.; Chicago Medical College, 1886; aged 73; died, March 4.

JOHN HENRY FULGHAM, East St. Louis, Ill.; Marion-Sims College of Medicine, St. Louis, 1895; a Fellow, A. M. A.; past president of St. Clair County Medical Society; formerly county coroner; on the staff of St. Mary's Hospital; aged 62; died, March 13, of heart disease.

ELIJAH P. GIBSON, Louisville, Ill.; Hospital College of Medicine, Louisville, Ky., 1878; aged 84; died, March 3, of myocarditis.

WILBUR HAWLEY GILMORE, Chicago; Jefferson Medical College of Philadelphia, 1903; a Fellow, A. M. A.; member of the Radiological Society of North America; served during the World War; member of the professional committee for medicine, Illinois Department of Registration and Education; secretary of the Illinois State Medical Society, 1913-1922; attending roentgenologist to the Illinois Masonic Hospital and the Illinois Eye and Ear Infirmary; aged 55; died, April 27, of coronary thrombosis.

HENRY M. HUNT, Chicago; St. Louis College of Physicians and Surgeons, 1887; aged 85; died, April 16, of myocarditis.

JOHN WILLIAM HUTTON, Newton, Ill.; Barnes Medical College, St. Louis, 1899 and 1900; member of the Illinois State Medical Society; county coroner; aged 57; was killed, March 26, when he was struck by an automobile.

JAMES JOHN MONAHAN, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1904; member of the Illinois State Medical Society; fellow of the American College of Surgeons; clinical associate in orthopedic surgery, Loyola University School of Medicine; aged 58; on the staff of St. Elizabeth's Hospital, where he died, April 13, of coronary thrombosis.

ROBERT C. NEWELL, Maywood, Ill.; State University of Iowa College of Homeopathic Medicine, Iowa City, 1879; aged 84; died, April 7, in the Cook County Hospital, Chicago, of chronic nephritis and uremia.

HENRY AARON NORDEN, Chicago; Rush Medical College, Chicago, 1889; formerly junior dean and professor of medicine, Loyola University School of Medicine;

school health officer of Chicago, 1914-1923; fellow of the American College of Physicians; aged 68; died, May 1, of hemiplegia, hypertension and arteriosclerosis.

STEPHEN JAMES O'BRIEN, Chicago; Northwestern University Medical School, Chicago, 1907, a Fellow, A. M. A.; aged 54; died May 7, of myocarditis and chronic nephritis.

THOMAS ARTHUR PETTEPIECE, Freeport, Ill.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; a Fellow, A. M. A.; past president of the Stephen County Medical Society; on the staffs of the Evangelical Deaconess Hospital and St. Francis Hospital; aged 60; died, April 15, of aortitis and myocarditis.

HARRY A. ROACH, Chicago; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1905; aged 53; died, March 20.

FRANCISCO J. RUCAVADO, Chicago; Northwestern University Medical School, Chicago, 1893; aged 76; died, May 6, in the Mercy Hospital, of prostatic hypertrophy and chronic nephritis.

KARL WILLIAM SCHLEGEL, Milford, Ill.; University of Illinois College of Medicine, Chicago, 1932; a Fellow, A. M. A.; aged 36; died, April 13, in the Lutheran Deaconess Home and Hospital, Chicago, of injuries received in an automobile accident.

EDWARD NATHAN SCHOOLMAN, Chicago; Chicago College of Medicine and Surgery, 1914; member of the Illinois State Medical Society; at one time medical director of the Elgin (Ill.) State Hospital, on the staff of the Michael Reese and Mount Sinai hospitals; aged 41; died, May 15, of coronary thrombosis.

SAMUEL T. SEALY, Mounds, Ill.; Meharry Medical College, Nashville, Tenn., 1909; member of the Illinois State Medical Society; aged 50; died, March 3, of cerebral hemorrhage.

CLARENCE MAITLAND SERVICE, Springfield, Ill.; Jenner Medical College, Chicago, 1902; inspector in the department of public works for the state of Illinois; aged 61; died, May 3, of gastric carcinoma.

WILLIAM BRADY SHARKEY, Clinton, Ill.; St. Louis University School of Medicine, 1924; a Fellow, A. M. A.; aged 35; died, April 13, in the Dr. John Warner Hospital, of pneumonia.

FREDERICK E. SONNENFELD, Chicago; Chicago Hospital College of Medicine, 1917; member of the Illinois State Medical Society; on the staff of the Roseland Community Hospital; aged 47; died, April 12, in the Passavant Memorial Hospital, of uremia.

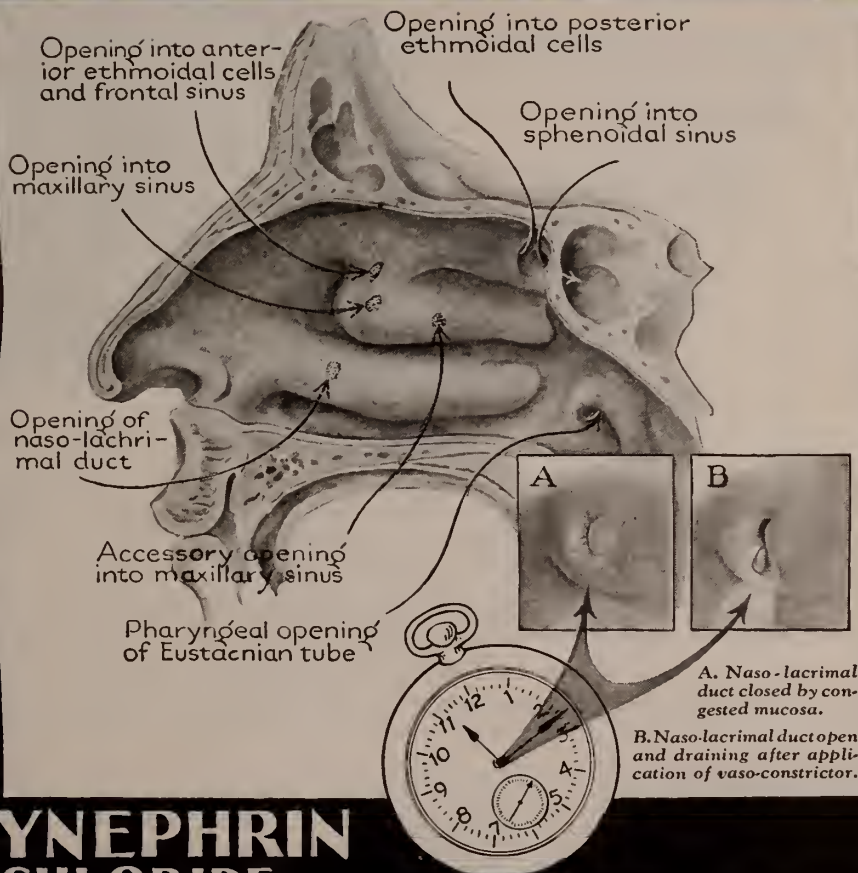
HENRY STEIN, Altamont, Ill.; Missouri Medical College, St. Louis, 1894; for many years president of the school board; aged 65; died, April 16.

WARREN E. TAYLOR, Moline Ill.; Hahnemann Medical College and Hospital, Chicago, 1877; at one time mayor and health officer of Monmouth; formerly managing officer of the East Moline (Ill.) State Hospital; aged 80; died, March 31.

ALONZO D. THORNTON, Goreville, Ill.; Chicago College of Medicine and Surgery, 1913; aged 52; died, February 1, in the Herrin (Ill.) Hospital, of pneumonia.

JOHN HENRY WATSON, Chicago; McGill University Faculty of Medicine, Montreal, Que., Canada, 1895; aged 64; died, April 19, of myocarditis.

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